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HEMOLYTIC STREPTOCOCCI

WITH SPECIAL REFERENCE TO THEIR RÔLE IN ACUTE RESPIRATORY INFECTIONS *

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CHICAGO

It seems opportune to discuss the subject of hemolytic streptococci at this time, because during and following such a serious respiratory epidemic as is at present prevailing, these streptococci in one way or another play an important rôle. So extensive is the subject that I can only select points here and there for discussion, and even of these I must speak in more or less general terms.

DEFINITION

By "hemolytic streptococci" I mean the streptococci which on plain blood agar plates cause a wide, clear, complete zone of hemolysis about a small, central gray colony. This zone is usually from 2 to 4 mm. across, but under varying conditions may be less or considerably more. Broth cultures of these streptococci, when added to suspensions of red corpuscles, will hemolyze them in vitro, a test which is also commonly used. This term does not include those common streptococci which, especially in dilute blood mediums or after several days, may cause atypical, colored or incomplete zones of hemolysis. Furthermore, it should be understood that the hemolytic streptococci do not constitute a single variety or genus. Hemolysis is a property common to a number of kinds of streptococci that differ decidedly in other respects.

CLASSIFICATION

With the appearance of Schottmüller's[1] classification in 1903, the old term *Streptococcus pyogenes* was discarded by many for the terms *S. viridans, S. hemolyticus* and *S. mucosus,* the three varieties into which streptococci were subdivided, largely on the basis of their reaction and appearance on blood mediums.

Only a few months later, indeed, almost simultaneously with the work of Schottmüller, similar observations and classifications were made and used in this country by Weaver, Hektoen, Ruediger, Rosenow and others. Since then, especially in the Central West, this method of study has been greatly extended and of late years has come into general use in the study of this group of bacteria.

I shall not discuss in detail the various classifications but only refer briefly to those based largely on hemolysis. Holman[2] first used it for classifying streptococci in conjunction with their fermentative reactions. On this basis he recognizes eight different varieties of hemolytic streptococci, to each of which he has given a specific name. Smith and Brown[3] divided hemolytic streptococci into an alpha and a beta type on the basis largely of the degree of hemolysis. The former causes a narrow zone of incomplete hemolysis about the colony, whereas the beta type causes a clear, wide zone of hemolysis, which is complete under and in close proximity to the central colony. It is a useful point for differential purposes. In Andrewes and Horder's[4] classification, two of their varieties, *S. pyogenes* and *S. anginosus,* are hemolytic.

Everything considered, the classification of Holman is perhaps the most useful and convenient, especially when dealing with pathogenic streptococci, and I myself prefer it. It cannot, however, be considered satisfactory in every respect. I have had occasion to study the streptococci in milk, and find especially in nonpasteurized milk streptococci forming wide, clear zones of hemolysis, some of which ferment lactose and salicin but not mannite. According to Holman's scheme, such organisms would fall into his group of *S. pyogenes.* In other respects, however, they are very different from *S. pyogenes.* They rapidly acidify and coagulate milk even at 20 C., and are on the whole much more heat resistant than the pathogenic streptococci. Morphologically, they are more elongated, and in milk tend to grow as diplococci and short chains. For rabbits, and no doubt human beings, these hemolytic milk streptococci have little or no pathogenicity, whereas *S. pyogenes,* as a group, is highly virulent. Indeed, this milk streptococcus is quite like ordinary *Streptococcus lacticus* in all respects except hemolysis, and I prefer to speak of it as a hemolytic *Streptococcus lacticus.* Yet should we apply Holman's classification, we should place these common milk cocci with a highly virulent group, *S. pyogenes,* with which they have few properties in common.

One point may be appropriately emphasized here: Often, especially in current literature, the term *Streptococcus hemolyticus* is used. Since we know that there are at least several kinds of streptococci that cause hemolysis, the use of the binominal *S. hemolyticus* is misleading in that it conveys the idea that there is one definite streptococcus designated thereby, which is not true. Holman's scheme of classification and nomenclature is here helpful in that he has differentiated and named at least some of the several hemolytic varieties.

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1. Schottmüller: München. med. Wchnschr. **50:** 849, 1903.
2. Holman: J. M. Res. **34:** 377, 1916.
3. Smith and Brown: J. M. Res. **31:** 455, 1914.
4. Andrewes and Horder: Lancet **2:** 706, 1906.

Since there are several hemolytic streptococci, I shall not attempt to discuss them all, but will limit myself to those streptococci that are pathogenic for man, or at least potentially so, and will refer to them as pathogenic hemolytic streptococci, understanding that here are included several different varieties, though possessing many important properties in common. They are the organisms commonly referred to as *S. hemolyticus* and roughly also as *S. pyogenes.*

Morphologically, they are spherical or slightly oval, and form definite chains, often quite long, though in the tissues if rapidly multiplying they are frequently seen in pairs or short chains. In the chain, pairing is noted often, though not to the extent seen in pneumococci or in the green streptococci. Their reaction on sugars is varied and, as we have already seen, on this basis they may be classified. Many strains ferment lactose and salicin; a few ferment mannite.

POISONOUS PRODUCTS

Our knowledge of their poisonous products is meager, though no doubt they produce highly toxic bodies. Their hemolytic activity is caused by a hemolysin called streptolysin, and is produced both in vivo and in vitro. According to Ruediger,[5] who studied this substance in detail, it has the structure of a true soluble toxin with a haptophore and a toxophore group. On injection into animals, it gives rise to a specific antibody (Besredka). In severe infections, hemolysis may occur in the vessels in animals and in man with resulting hemoglobinemia. Streptolysin, however, does not appear to be the most important poison produced, since it is not highly toxic and its production does not parallel the intensity of the infection. Nor are the important lesions produced of such a nature as to lead one to think they are caused by the hemolysin. Hemolytic streptococci are not dangerous primarily because they are hemolytic. Some nonhemolytic streptococci are far more dangerous than the hemolytic varieties.

Recently Clark and Felton[6] reported that by growing hemolytic streptococci (isolated from Army camp bronchopneumonias) in rabbit's blood diluted with Locke's solution they obtained a filtrable toxic product which kills rabbits at times in doses of 0.5 c.c. per kilogram intravenously. Its formation is in some way dependent on hemoglobin, but the poison is nonhemolytic in vivo and in vitro. They report that its introduction into a rabbit will immunize both against the poison and against living streptococci. I am not aware that this work has been confirmed. If repeated successfully, it will make an important step in our knowledge of these organisms.

Filtrates of old cultures are only very slightly toxic, and the dead bodies of streptococci either highly or slightly virulent, killed in various ways, can be injected into animals and man in relatively large doses without marked toxic symptoms. They behave in this respect quite like numerous other pathogenic bacteria whose poison lies closely bound with the bacterial cell and to which we apply the term "endotoxin." Practically nothing is known about it.

VIRULENCE

The aggressive and invasive properties of streptococci deserve first consideration, for under certain conditions no other organism known manifests such varied and extensive activities. Aggressins in the sense of Bail have been described, but how they act is not certain. I am inclined more and more to regard the existence of a capsular substance about these streptococci as of considerable, perhaps fundamental, significance. We know very well the virulence of *Streptococcus* or *Pneumococcus mucosus.* I have tested many strains, and all, even those of relatively low virulence, if injected into animals, can be made to reveal a capsule. The highly virulent streptococci, those, for example, from milk epidemics, readily show a capsule in sputum, exudate or blood. Generally, the more virulent the organism, the more distinct is the capsule and the less susceptible are the cocci to phagocytosis. In the streptopneumococcus group, many facts point to a parallelism between capsule substance and virulence.

The virulence of hemolytic streptococci seems to vary markedly for man. This property is so intimately bound up with invasive properties and with the resistance and immunity of the host that analysis of this factor is difficult. In the human being, marked differences in the intensity of infection are commonly observed, though caused by streptococci which, when isolated, are apparently alike, and on animal inoculation show little difference in virulence. To sum up many observations on the virulence of different strains for rabbits, one practically never encounters a hemolytic streptococcus that will kill a 1,000 gm. rabbit in doses of less than 0.5 c.c. of a twenty-four hour serum broth culture intravenously. Usually the highly virulent human strains require larger doses (1 c.c.) to kill or to cause joint and other lesions in rabbits. Guinea-pigs are distinctly less susceptible than rabbits. On the other hand, hemolytic streptococci, with the exception of the hemolytic milk streptococci of the lactic acid type referred to above, usually will kill or cause lesions in rabbits in doses of from 2 to 3 c.c. in 1,000 gm. animals. There are exceptions to this, some strains requiring larger doses. On the whole, however, one may say that the virulence of hemolytic streptococci for rabbits is decidedly higher than that of the green producing streptococci. Highly virulent (as determined by rabbit injection) strains of streptococci may be obtained from normal persons, and less virulent strains at times from severe human infections; but in general the more virulent strains for animals come from virulent human infections. By animal passage it is possible to enhance the virulence of hemolytic streptococci to some extent, though the range is decidedly limited. I have never observed it consistently higher than 0.5 c.c. of serum broth culture per 1,000 gm. rabbit. The organism is therefore in this respect decidedly different from the pneumococcus. On artificial mediums, including blood agar, the virulence decreases materially though slowly. My hemolytic streptococci from the milk epidemic of 1910, some of which then killed rabbits in doses of 0.5 c.c., will not at present kill in doses of 4 or 5 c.c. intravenously, for mice, streptococci appear to be more highly virulent, and may by several passages acquire aggressive properties for this animal comparable to pneumococci.

ANTIBODIES

As to antibody formation in animals and in man it may be stated from the work of Hektoen, Tunnicliff, Ruediger and others that definte specific opsonins appear both after various streptococcal diseases and

5. Ruediger, G. F.: The Production and Nature of Streptocolysin, J. A. M. A. **41**: 962 (Oct. 17) 1903.
6. Clark, A. H., and Felton, L. D.: A Filtrable Toxic Product of the Hemolytic Streptococcus, J. A. M. A. **71**: 1048 (Sept. 28) 1918.

after artificial inoculation with dead bacteria. These appear to be the most important antibodies formed, and so far as is known the self limitation of hemolytic streptococcal infections probably depends on them. Specific agglutinins have been shown by various observers to appear; but they are inconstant, low in titer, and more or less specific for the homologous strain. Smith and Brown[3] and Krumwiede[7] have found them useful in identifying strains suspected of causing epidemics of sore throat. Kinsella[8] and others have noted the production of complement fixing bodies in immunized animals, and use this for purposes of classification. On this basis the hemolytic streptococci from man seem to form a homogenous group. Antibodies for streptolysin and a possible toxic filtrate have already been referred to.

IMMUNITY AND RESISTANCE

Many animals, as the guinea-pig, the rat and the bird, are naturally more or less immune to streptococci. Others, as man, the horse, the cow, the mouse and the rabbit, are more susceptible to both natural and experimental infection. Acquired immunity following a natural streptococcus infection, if it occurs at all, is slight and of short duration. Many diseases caused by streptococci, as erysipelas, pneumonia and sore throat, are prone to second attacks, though the attacks are usually separated by periods of months or at least of several weeks. Experimentally, animals may be immunized. Moore[9] has shown that rabbits may be immunized against homologous strains by prophylactic injections of dead hemolytic streptococci. This immunity persisted over forty days, at least in one instance, and seemed to be dependent on the production of opsonins.[10] Concentrated antistreptococcus serum did not exhibit any protective value. The antistreptococcus serums of Marmorek, Aronsen, Moser and of many others that have come on the market in recent years have been distinctly disappointing for both prophylactic and curative purposes.

The aggressive properties of the streptococcus, and the immunizing and resisting powers of the patient, are no doubt intimately related, making it extremely difficult to analyze satisfactorily the various factors involved. The differences between the aggressive or virulent property of strains of hemolytic streptococci are not great, at least according to what our various methods of study reveal. So, too, immunity reactions on the part of the host after either natural or experimental infection are not especially intense or active. There is little doubt that these factors, however, do play an important rôle in determining the course of infection. To illustrate: I observed a small streptococcus infection on the finger of a person following a necropsy. It caused a rise in temperature of 2 or 3 degrees, a leukocytosis of 12,000, malaise, headache and a chilly sensation. A small drop of pus was expressed through an opening near the finger nail, and in thirty minutes the temperature had returned to normal and all distress was relieved. In the pus were a moderate number of hemolytic streptococci. At the same time I was observing a man, apparently feeling little worse and who later recovered, with a streptococcus empyema and more than a liter of pus in his thorax, every smear of which revealed hundreds of streptococci. In morphology, in culture, and in virulence for animals, the hemolytic streptococci from these two cases could not be distinguished; and neither strain could be distinguished from certain hemolytic streptococci cultivated from normal tonsils.

PATHOGENESIS

For Animals.—Many animals are prone to natural infections with hemolytic streptococci. The horse seems peculiarly susceptible, and a variety of infections both acute and chronic result. Mathers,[11] two years ago, studied the interesting disease equine influenza, or shipping fever, in horses, and found the cause to be a hemolytic streptococcus. Various organs of the body, but especially the respiratory passages, were attacked. The streptococcus was culturally and morphologically quite like the hemolytic streptococcus commonly found in human disease. However, there is no evidence that it is dangerous or virulent for man, and no causal relation between epidemics in horses with epidemics or even individual cases in man could be detected.

In cows, streptococcus infections, especially of the udder, are common. Many are caused by hemolytic streptococci, an occasional strain of which is evidently of human origin. These streptococci may be virulent for man, and, being disseminated through the milk, may be responsible for epidemics of streptococcus sore throats, several of which have now been observed in the United States and many more in Europe. Experimentally, it has been shown[12] that hemolytic streptococci of human origin, when planted on the teat, especially if it has been abraded, may ascend the ducts and cause a long enduring infection in the udder of the cow. The udder may show extremely little evidence of disease, and the milk grossly may be quite normal. Microscopically, however, the leukocytes are greatly increased, and the virulent streptococci are shed in the milk in large numbers for weeks or months. Apparently only a few of the hemolytic streptococci found in milk and causing mastitis in cows are dangerous to man. Jones[13] has compared twenty-eight strains of hemolytic streptococci from the udders of infected cows, and has found that though they are typical hemolyzers, they are of low virulence for rabbits. All except three were specifically agglutinated by antiserum prepared from one strain. Three strains of hemolytic streptococci of human origin were not agglutinated by this antiserum.

For Man.—The pathogenesis of hemolytic streptococci for man forms one of the most important chapters in human medicine, since every department and specialty meet and must handle this problem constantly and from various standpoints. Of the skin diseases, erysipelas is one of the definite infections caused by this organism. The streptococcus of erysipelas has been considered specific for this disease. We do not yet know that it is not, but experimentally erysipelas has been produced by streptococci from other sources, and erysipelas streptococci have long been known to cause puerperal sepsis. Hemolytic streptococci cause or are often associated with other lesions of the skin.

Sore throat, sporadic and epidemic in character, is commonly caused by hemolytic streptococci. The epi-

7. Krumwiede: J. M. Res. **33**: 231, 1915.
8. Kinsella: J. Exper. Med. **28**: 169, 1918.
9. Moore: Jour. Infect. Dis. **15**: 215, 1914.
10. This may be considered as a theoretical basis for prophylactic vaccination in man against hemolytic streptococci. However, the liability to second attacks of streptococcus infections in general indicates that if any immunity at all is established it is probably of short duration—a few weeks at most.
11. Mathers, George: Proc. Inst. Med., Chicago **1**: 84, 1917.
12. Davis and Capps: J. Infect. Dis. **15**: 135, 1914.
13. Jones, F. S.: J. Exper. Med. **28**: 253, 1918.

demic type and its relation to mastitis in cows we have already mentioned. An intimate relation between hemolytic streptococci and the tonsillar crypts probably has much to do with determining the incidence of this common infection, a point that I will amplify later when discussing the distribution of streptococci in the body.

Puerperal sepsis, septicemias, endocarditis, meningitis, arthritis, myositis and numerous other infections I can merely refer to as serious conditions all often caused by hemolytic streptococci. Small foci of streptococcus infections about the teeth, sinuses and other parts of the body likewise form an important group which space permits me only to mention.

Streptococcus infections of the respiratory tract, especially the pneumonias, deserve special consideration at this time. Streptococcus pneumonia, both primary and secondary, has long been known and recognized as common in the old and the young, and as a terminal process generally. Following the contagious fevers, especially in children, it has played a significant rôle. In the military camps last year, when the troops were being mobilized, streptococcal pneumonias and empyemas became very frequent. These infections usually followed measles or other contagions; but not infrequently epidemic streptococcal pneumonias appeared apparently as a primary infection, frequently complicated with empyemas and often running a rapid, fatal course with high mortality. Reports from various camps, many of which, by different investigators, have recently appeared in the literature, in general agree as to the essential characteristics of these infections. MacCallum has discussed the pathology, which he regards as an acute interstitial pneumonia. While hemolytic streptococci were most commonly found in the lung, exudates, etc., not infrequently other nonhemolytic streptococci and pneumococci were evidently causal organisms.

And then last fall, while certain camps were still affected with the hemolytic streptococcus epidemics, the epidemic of influenza appeared. It may be too early as yet to appreciate fully the rôle that hemolytic streptococci have played and will play in this epidemic, which is still with us. From the reports available it would seem that they have not played an important part as a primary cause of the disease. Early, they may be found in the sputum, though usually in few numbers and not as the predominating organism. Later, their numbers appear to increase, and in those cases in which empyemas develop, they are especially common. Nuzum, Pilot, Stangl and Bonar[14] found hemolytic streptococci in 20 per cent. of washed bronchial sputum, and in 4 per cent. of cultures of the nasopharynx. In fifteen lung punctures it was obtained three times; at necropsy in thirty-six cases, it appeared in 43 per cent. of lungs and eight times in the heart's blood. These data would indicate that it appears as a secondary invader. Hirsch and McKinney's[15] report from Camp Grant does not point to hemolytic streptococci as playing an important rôle. Tunnicliff's[16] experiments did not reveal any specific opsonic variation for hemolytic streptococci, though this did exist for a green-producing streptococcus. Keegan[17] found hemolytic streptococci in approximately pure culture in the sputum of 4 per cent., and in small numbers in 16 per cent. additional. In lung punctures and necropsies, he found it pure in four out of twenty-three cases studied. He regards the disease as caused by the influenza bacillus, with pneumococci and hemolytic streptococci as frequent secondary invaders. Friedlander, McCord, Sladen and Wheeler,[18] from swabbing of the throat and nasopharynx, recorded hemolytic streptococci in only 4 per cent., while in necropsy exudates it appeared as the outstanding organism in 47.7 per cent. Blanton and Irons,[19] in an extensive investigation, found it in 30 per cent. of sputums of influenza pneumonias; and in 280 necropsies it appeared seventy-six times in the lung and sixty-two times in the heart's blood. It appeared in 34 per cent. of throat swabs of influenza patients without pneumonia. It is interesting to note that they found hemolyzing streptococci in 75 per cent. of cultures of the nose and nasopharynx of normal enlisted men made just before the appearance of the epidemic, a far greater percentage than in cultures of the influenza patients.

Of sixty-two cases of clinical influenza in which I examined the washed sputum, forty-two were cases of less than ten days' duration, and hemolytic streptococci appeared in thirteen (31 per cent.), though as a rule few in number. In only one case were they numerous and predominating. This incidence is decidedly less than what I am accustomed to find in normal throat swabs (from 50 to 60 per cent.). Of the remaining twenty sputums from cases of more than 10 days' duration, hemolytic streptococci were found thirteen times (65 per cent.), eight in moderate numbers and five in which they were very numerous and predominant. In the later cases, *Micrococcus catarrhalis* also were common and often numerous; they were not noted in appreciable numbers early. In five of the sixty-two patients, *B. influenzae* was found, three times in cases under ten days' duration and twice in cases over that period. Ten of these cases were from a secondary outbreak at the University Hospital, appearing about a month after the first outbreak in the same institution. There were no essential differences in the sputum flora. *B. influenzae* was not found in the secondary outbreak. Gram-positive, encapsulated, green-producing pneumococcus-like organisms were predominant in practically all the sputums mentioned above. In four postmortems of patients dying from pulmonary complications in from three to six weeks after pneumonia, hemolytic streptococci were found pure or nearly pure in the lung or pleural cavity.

From the foregoing data it seems plain that the hemolytic streptococcus is not a primary agent, but is playing, and will no doubt continue to play, an important part as a secondary invader in the present epidemic of influenza. In the early deaths it seems to be less important; but in the protracted cases it often assumes primary importance in a way quite analogous to the rôle that it played last year in military camps after measles and other infectious diseases. One question uppermost in our minds is this: Will these streptococci, through a heightened virulence for the human

14. Nuzum, J. W.; Pilot, I.; Stangl, F. H., and Bonar, B. E.: Pandemic Influenza and Pneumonia in a Large Civil Hospital, J. A. M. A. **71**: 1562 (Nov. 9) 1918.

15. Hirsch, E. F., and McKinney, Marion: Epidemic of Bronchopneumonia at Camp Grant, Ill., J. A. M. A. **71**: 1735 (Nov. 23) 1918.

16. Tunnicliff, Ruth: Phagocytic Experiments in Influenza, J. A. M. A. **71**: 1733 (Nov. 23) 1918.

17. Keegan, J. J.: The Prevailing Pandemic of Influenza, J. A. M. A. **71**: 1051 (Sept. 28) 1918.

18. Friedlander, A.; McCord, C. P.; Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, J. A. M. A. **71**: 1652 (Nov. 16) 1918.

19. Blanton, W. B., and Irons, E. E.: A Recent Epidemic of Acute Respiratory Infection at Camp Custer, Mich., J. A. M. A. **71**: 1988 (Dec. 14) 1918.

being, possibly soon or during the coming winter acquire properties that will enable them to cause an epidemic of primary streptococcal pneumonia comparable to those of a year ago? I am not aware that any of the now recurring epidemics of influenza are of this character; but we should be on our guard against such an event.

DISTRIBUTION OF HEMOLYTIC STREPTOCOCCI IN THE HUMAN BODY

In 1912, in studying the bacteriology of the tonsils from various diseases, including arthritis, nephritis and myocarditis, I[20] was struck with the common occurrence of typical hemolytic streptococci in the crypts, often in pure culture, whereas on the surface of the same tonsils they were often few or absent, while the green-producing cocci predominated. In forty-eight cases of the foregoing diseases the hemolytic streptococcus was predominant or abundant in forty-five, or 94 per cent. In a series of sixty-one pairs of tonsils, which were extirpated mostly from children for various reasons, chiefly hypertrophy, many appeared quite normal, and hemolytic streptococci were found practically as often, namely, in fifty-five, or 90 per cent. In subsequent work the cultivation[21] of numerous tonsils from a variety of diseases has convinced me that the crypts of the tonsils are in almost all cases the habitat of many hemolytic streptococci, often almost pure. Pilot[22] has recently investigated this matter and carefully compared the tonsillar crypt flora with throat swab and tonsil surface cultures. Briefly, in 100 cases of ordinary hypertrophy without inflammation, the pharynx was positive for hemolytic streptococci in 43 per cent. and the tonsil surface in 61 per cent., and in these the hemolytic colonies numbered less than 10 per cent. of the total number of colonies. In the crypts of the same tonsils after extirpation the hemolytic streptococci were found in 97 per cent of the tonsils, and in most of these were greatly predominant. Furthermore, Pilot found that in twenty-four normal persons, cultures from the surface of tonsils revealed hemolytic streptococci in 58 per cent., usually not predominant. In nineteen persons without tonsils, cultures from the pharynx and tonsillar region yielded hemolytic streptococci in only three, or 15 per cent. The recent work of Nichols and Bryan[23] in the United States Army is quite in accord with these data and indicates that the crypts of the tonsils are a common habitat for hemolytic streptococci.

I will call attention also to the very common occurrence of the actinomyces-like granules[24] in the tonsils of nearly every one at some time. In these granules, hemolytic streptococci, as well as nonhemolytic streptococci with rather marked anaerobic properties, appear sometimes in large numbers and in a high proportion of instances.

The hemolytic streptococci found in tonsils and in throats of apparently normal persons seem to be typical in every respect. For rabbits many of them are distinctly pathogenic, as pathogenic as many strains from sore throats or from abscesses. According to Holman's classification, they would fall chiefly into the *S. pyogenes* and *S. anginosus* groups.

I know of no other anatomic structure or location in the body that so consistently harbors hemolytic streptococci as do the tonsillar crypts. In the nose they are rare. I have never found them persistently present in a normal nasal mucosa, and their presence there means almost surely an infection, usually an infected sinus. In the pharynx of normal persons, as we have seen, they are found roughly in between 50 and 60 per cent., but in the absence of inflammation not in large numbers. I raise the question as to the possibility of the tonsil crypts being the chief feeding focus of hemolytic streptococci for the throat and the respiratory passages. In a few cases in which I have examined adenoids I am not convinced that they are an important habitat for streptococci, though they may be found in moderate numbers in the hypertrophied tissues. About the mouth and teeth, infected foci may commonly be feeders of streptococci for the throat; but the normal gums do not harbor them in large numbers. The skin of persons who bathe regularly rarely harbors hemolytic streptococci. Schachter[25] found no hemolytic streptococci on the bodies of thirty-eight clean persons; whereas he isolated hemolytic streptococci from the skin eight times from eighty-nine filthy persons, usually from the hairy parts of the body. They were not numerous, but were typical and virulent for rabbits. The source of such organisms may very well be the buccal secretions. Hemolytic streptococci, when placed experimentally on the human skin, usually disappear in a few hours and are readily removed by washing.

The gastro-intestinal tract seems to be quite free from hemolytic streptococci, at least normally. I have recently had occasion to study this point both experimentally and in man, being induced to do this to determine the fate of the hemolytic streptococci that are swallowed almost constantly by normal persons and by those infected with the numerous streptococcal respiratory diseases. Examination of fifty-three stools from a series of persons, many of whom were known to have hemolytic streptococci in their throats, did not reveal a single colony in any case. Stools from several scarlet fever patients showed no hemolytic streptococci. Three rabbits were given by stomach tube from 10 to 20 c.c. of a culture of virulent hemolytic streptococci every day or every other day for one month. The rabbits' stools were examined from time to time, and with one exception were always negative for these streptococci. The stomach and intestinal contents of such rabbits and also rabbits suffering with streptococcus arthritis were likewise invariably free. Hemolytic streptococci are very sensitive to the acids of the stomach or to free hydrochloric acid. When placed in the stomach contents of human beings or rabbits even in large numbers, they are all dead in from two to five minutes. Strains vary somewhat, but generally they are killed in two hundred and fifty-sixth normal (0.012 per cent.) hydrochloric acid in two minutes. They will live, however, in the intestinal contents of feces, at least for several days. From the foregoing experiments and observations we may conclude, I think, that ordinarily hemolytic streptococci, though swallowed in large numbers, are quickly destroyed in the gastro-intestinal tract, and that the feces from infected persons are not a source of danger in spread-

20. Davis, D. J.: J. Infect. Dis. **10**: 148, 1912.
21. When cultures are made, the tonsil is carefully incised with a sterile knife, and material from the depths of the crypts is obtained with a platinum loop. Surface contaminations and laceration of the organ in removal will decidedly increase green-producing streptococci in the cultures.
22. Pilot: Unpublished observations.
23. Nichols, H. J., and Bryan, J. H.: The Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers, J. A. M. A. **71**: 1813 (Nov. 16) 1918.
24. Pilot and Davis: J. Infect. Dis. **23**: 562, 1918.
25. Schachter: Proc. Chicago Path. Soc. **10**: 301, 1918.

ing the infection. Some preliminary work in the laboratory on the appendix indicates that it is not a common habitat for hemolytic streptococci.

RÔLE OF HEMOLYTIC STREPTOCOCCI AS PRIMARY AND SECONDARY INVADERS

Summing up these observations on the distribution of hemolytic streptococci, the facts point strongly to the crypts of the tonsils as being the main and in a sense a normal habitat of these organisms in the human body. Perhaps they are as normal to the tonsil crypts as is *Streptococcus viridans* to the buccal mucosa, *Staphylococcus albus* to the skin, or the colon bacillus to the intestine. From here they may be disseminated to adjacent tissues, ready possibly to take advantage of certain conditions, especially diseases of the respiratory tract, and give rise to secondary infections of a most serious nature.

The question arises as to whether or not persons are commonly or usually infected with their own hemolytic streptococci, or are the invading streptococci in infected persons of foreign origin? No doubt the latter statement is often true, as seems clearly proved in the case of sore throat epidemics of milk origin. Furthermore, many facts point to the common dissemination of streptococci by means of droplet infection. The route of infection is not so clear, however, in secondary streptococcus infections following other diseases. In the common terminal infections so often due to this organism there is little doubt that the individual is killed by his own streptococci.[26] It has been pointed out that such streptococci are as virulent as epidemic streptococci for man, especially after growing in the body for a time. It would seem reasonable to assume, as has been assumed by some in connection with the streptococcus empyemas of last year, that individuals are being infected from time to time with their own streptococci, especially following the contagious diseases, and that by this process the streptococci become more and more virulent and aggressive, reaching a point ultimately at which the small doses contained in infected droplets or in other vehicles are sufficient to transmit the disease to a normal person. Thus a secondary invader may become transformed into a dangerous primary infective agent.

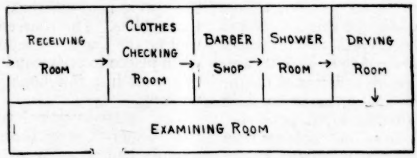

Fig. 1.—Scheme for delousing.

26. Richie, D. G., and Goehring, Carl: J. M. Res. **38**: 421 (July) 1918.

Nonworkers Should Hibernate.—A correspondent in the *British Medical Journal* (February 26) advocates as a means of food saving a modified hibernation on the part of nonworkers. He says that, roughly, five sixths of food values go to producing and maintaining animal heat, and one sixth to the production of physical and mental energy. Of every 100 calories of heat produced within the body 80.1 per cent. is lost by radiation and conduction; 14.7 by evaporation; 2.6 per cent. in heating food and drink consumed, and 2.6 per cent. in heating inspired air. Lying in bed till late in the day by nonworkers, he says, will clearly reduce the heat loss and output of energy, with consequent saving in food requirement. He therefore says the idle poor, the rich, infirm and insane persons should be compelled to remain in bed, warm and at rest till noon daily.

THE IMPORTANCE OF THE LOUSE PROBLEM *

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The demobilization of armies is usually associated with the introduction of epidemic diseases into civil communities. There is great possibility of louse-borne diseases gaining entrance into the United States unless necessary measures are taken to exclude them. The question as to whether epidemic influenza could have been excluded from this country remains an open one; but it can be said with a certain degree of certainty, that with the application of proper measures, epidemic typhus fever, trench fever and relapsing fever can be excluded. In view of the fact that the louse has spread more disease in the present war than all the other insects combined, its importance as a disease carrier can be appreciated. It is important, therefore, that proper facilities be provided to delouse all returning troops, that the public health authorities provide measures for the delousing of immigrants, and that physicians be on the alert for the possible occurrence of louse-borne diseases, leading to the early isolation of those affected.

Vermin infestation is now prevalent throughout Europe, the annoyance of the "cootie" being well known to all American soldiers. Coincident with this widespread vermin infestation exists the impoverishment of most European peoples. These conditions usually precede a typhus fever epidemic. This fact is often related in the history of typhus fever. Epidemic typhus fever has already made its appearance in European countries, and with the advent of winter, when the disease is most common, we have much to fear from a general typhus fever epidemic. The Allied troops are coming more and more in contact with the Russian and Balkan peoples, and the spread of this disease from army to army and then from country to country need be anticipated. For these reasons it is believed that due consideration should be given this problem, and proper measures be employed to exclude these diseases from the United States. It is important to point out that endemic typhus fever (Brill's disease) is a disease not uncommon in this country; and with the introduction of vermin, we may fear a greater number of cases and a possible increase in its virulence.

The eradication of vermin infestation calls for strict adherence to a certain definite plan of treatment. It has been said that vermin infestation in European armies started from a few infested individuals, and owing to the close association of the troops, the infestation rapidly spread. The escape of one vermin-infested individual into a community may cause considerable infestation. A vermin-infested man, then, should be regarded in the same light in which one regards a meningococcus carrier: he is a danger to the community until his condition is cleared up.

* From the Division of Sanitation, Medical Department, U. S. Army.

FUNDAMENTAL PRINCIPLES

In order that the best results may be obtained, there are certain fundamental principles regarding the subject of delousing that must be taken into consideration.

1. The clothes louse (*Pediculus humanus-corporis*) transmits typhus fever, trench fever and relapsing fever. These diseases are not transmitted by the bite of the louse but by a virus which is contained in the excreta. This virus gains entrance through the puncture wound made by the louse while sucking, or is scratched in by the infested individual. Therefore, a method which destroys only the lice and eggs without causing the destruction of the virus in the excreta is not sufficient. Delousing, then, should be defined as that process which destroyes lice and their eggs and the virus concerned in the transmission of disease.

The clothes then come out dry. If shrinkage of woolen materials result, the disinfector is not properly operated. Shrinkage of woolen materials is due to combined moisture and high temperature; therefore, if the moisture is kept at a minimum and the temperature at a point sufficient to sterilize, this will not occur. In no instance should leather material (such as shoes, puttees and hat) or rubber, celluloid material or money be sterilized. The occurrence of vermin in these materials is rare.

ARMY PLAN

The Army proposes to handle the problem in this manner: All troops will be detained at foreign ports for a period of two weeks, during which time persons with infectious and epidemic diseases will be isolated and universal delousing will be practiced before

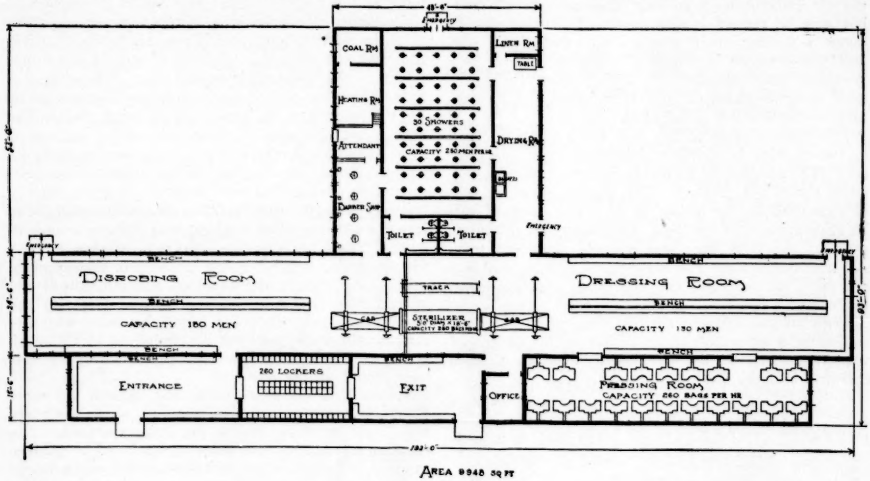

Fig. 2.—Plan of delousing plant.

2. Various methods have been recommended for delousing, such as hydrocyanic acid gas, chloropicrin, and various insecticides and heat appliances. It is to be noted that the virus of relapsing fever is a spirochete, while that of typhus fever is a bacillus. As these gases and insecticides are not bactericidal, they cannot be regarded as perfect delousing agents. In all instances in which heat is used, a high enough temperature must be employed to destroy the virus as well as lice and eggs. Steam has been found to be the best delousing agent.

3. All persons coming from a vermin-infested area should be regarded as if they were vermin infested. Examination for vermin in large bodies of men, even in the hands of experts, is of little value. A great deal of time is consumed in the examination, and the final result is of little use.

4. Clothes lice may lay their eggs on the hair of the head and of the axillary and pubic regions. This must be taken into consideration when treating this condition.

Clothes lice should be treated by sterilizing all clothing by exposure to steam under pressure for thirty minutes followed by ten minutes in a vacuum. embarking. Delousing will be practiced on transports when necessary. All soldiers on transports will be instructed to devote fifteen minutes each day to the search for vermin in their clothing. Universal delousing will be again practiced at debarkation camps in the United States. This will serve as a check on the first delousing.

AN EFFICIENT DELOUSING PLANT

All sick and wounded will be deloused at the debarkation hospital. An efficient method would be to have the delousing room in association with the receiving ward. The following plan is suggested for this purpose. With this method vermin infestation would be prevented from being carried to the wards.

In order that the greatest number of men may be handled in the shortest period of time, it is important to have a rapidly functioning delousing plant. According to the plan here proposed, 260 soldiers and all their equipment can be deloused every hour. According to this plan the man enters with his barrack bag containing all his clothing. The leather materials, rubber, celluloid materials and money are passed in at the locker room. The man receives two numbered tags

corresponding to the number of the locker, and then proceeds to the disrobing room with his barrack bag. All his clothing is placed in the bag, which is tied and numbered with one of the tags, the man retaining the remaining tag. The bag is then placed in the carriage, which is pushed into the steam sterilizer. The sterilizer is 18½ feet long by 5 feet in diameter and is provided with two cars and transfer tracks, so that one car will be loading or unloading while the other is in the sterilizer.

The soldier then proceeds to the hair-cutting room. Before entering, he is inspected for vermin and nits. If vermin and nits are found in the hair of the head, axillary or pubic region, he is passed into the barber shop. If none are found, he passes into the shower room. In the barber shop the hair is cropped with an electric hair-cutting machine. The axillary and pubic hair can be shaved in this room. Following this he enters a shower room, where a bath with liquid soap and warm water is obtained. The soap used is a kerosene soap mixture. A drying room follows, a table being provided for the clean towels and a receptacle to receive the soiled ones.

Provision is made in this plan for a pressing room, as the clothing is wrinkled following steam sterilization. The pressing of garments, however, would somewhat retard the process. The leather material, etc., is reclaimed at the locker room. The floor of this building is made of concrete. Two toilets are provided, one for the dirty men and one for the clean men. All attendants wear the louse-proof suit, which is a one-piece garment covering the shoes and tied about the neck.

With an arrangement such as this, when universal delousing is practiced, there should be no danger of vermin infestation or louse-borne diseases gaining entrance into the United States.

INTESTINAL PARASITES DURING A YEAR AT THE WALTER REED GENERAL HOSPITAL*

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During the year October, 1917, to October, 1918, there were examined at the laboratory of the Walter Reed General Hospital 477 samples of feces for intestinal parasites. In nearly every instance the samples were submitted because the patient had shown some evident or obscure reason for suspecting the presence of intestinal animal parasites, although there are included a number of samples that were sent for examination for typhoid or dysentery bacilli. The 477 stools came from 163 individuals, seventy-two of whom, or 44 per cent., were found to harbor one or more kinds of parasites, while in ninety-one persons, or 56 per cent., no parasites were found.

With the exception of *Endameba histolytica*, none of these cases of intestinal parasites can be said to possess much medical interest. Their presence is one of greater zoological than medical interest. Next to the ameba infections the hookworm cases are of most interest. Most of these were very light infections, but they are an indication of how widely scattered this parasite has probably become during the formation of the Army.

The method practiced in looking for protozoan parasites is to place a drop of the feces, either plain or mixed with a little water or salt solution, on a slide and press it out with a cover glass. No attempt is made to concentrate cysts. In searching for ova or embryos a considerable portion of the stool is emulsified with water, usually by pouring water into the container in which it is sent to the laboratory. The liquid material is then poured through two thicknesses of gauze into a urine sedimentation glass. After a distinct sediment has formed in the point of the glass, the brown supernatant water is poured off. More water is then roughly added so that the sediment is thoroughly stirred up, and it is allowed to settle again. This washing is repeated several times until the supernatant water is essentially clear. After the final sedimentation, about 0.25 c.c. of the upper layers of the sediment is spread on a slide without a cover glass and search made with the low powers of the microscope, a mechanical stage being used. The spread occupies most of the slide, and by the use of a wax-penciled border is kept from running over its edges. The chief advantage in the washing and sedimentation is that innumerable small particles, mainly bacteria, are got rid of, and a very clear sediment is left to examine. The washing may appear time consuming, but it takes only a moment to pour off and fill up again, and while the settling is taking place other things can be attended to. Examination of one spread slide is considered sufficient to establish the presence of ova. In a few cases, however, an especially enthusiastic searcher has found an ovum or an embryo in examining a second spread which had not been found on the first.

Hookworm, *Necator americanus*, was found most frequently, occurring in 34.2 per cent. of the parasites and 17.2 per cent. of the persons examined. The number of worms was always small. The largest number recovered from complete stools after hookworm treatment was seventy-one and the smallest two. Its presence often caused a slight eosinophilia. The first case found was in a patient whose blood, on being examined for malaria parasites, showed so many eosinophils that a stool for examination was requested. The farthest north from which the hookworm cases came was Virginia and Tennessee. Hookworm ova were found alone twenty-three times; with *Strongyloides* embryos twice; with *Endameba coli* twice; with *Ascaris* and *Trichuris* twice, and with *E. coli*, *Trichuris* and *Trichomonas* once.

Strongyloides, occurring in 4.3 per cent of the persons examined and 8.5 per cent of the parasites, was found alone five times and twice with *Necator*. With two exceptions they were not present in large numbers. In one of these they were the only parasite present, and in the other they were with the second heaviest hookworm infestation, and both were in patients in the tuberculosis ward. In the case occurring with hookworm, successful treatment for the latter failed to have any effect in reducing the number of *Strongyloides* embryos.

The five *Taenia saginata* cases were not diagnosed in the first instance by the laboratory, but having been found elsewhere, were sent into the hospital for treatment.

* From the Laboratory Service of the Walter Reed General Hospital.

The three *Trichuris* cases were light infections. In one of the cases in which it was the only parasite present, the host came from Brooklyn, while in the other two cases the patients were from the Southern states.

Of the four *Ascaris* infestations, two were present alone in small numbers and two occurred with both *Necator* and *Endameba coli;* once with *E. histolytica,* thirty-four worms were recovered. It was one of the few cases in which intestinal helminthiasis appeared to be the only pathologic condition in a patient.

The two cases of infestation with dwarf tapeworm, *Hymenolepis* occurred without other parasites being present.

The single case of *Oxyuris* occurred in a nurse.

Endameba coli was present in seventeen of the persons examined, and next to hookworm was the most frequent parasite, occurring in 10.4 per cent. of the persons and 20.6 per cent. parasites. It occurred alone twelve times, with *E. histolytica* once, with *Necator* twice; with *Trichuris, Necator,* and *Trichomonas* once, and with *Trichomonas* once.

Endameba histolytica was found in ten individuals, 6.1 per cent, and 12.2 per cent among the parasites. The patients having it were either from the Southern states or had had tropical service. It occurred alone eight times; with *E. coli* once, and with *Trichomonas* once. None of the cases showed any manifestation of the infection outside of the intestine. One case was of particular interest. The patient was an especially well built person and was receiving a third course of emetin hypodermically, as two previous courses had failed to destroy the amebas. Although apparently perfectly well during the previous day and able to be up and about, he went into a state of collapse one night. Stimulants failed to revive him, and he died the next morning. Necropsy revealed no abnormalities other than venous congestion and a rather extreme dilatation of the right side of the heart. No evidence of the amebic infection was present. There is little doubt that death was due to the specific action of the emetin. In its symptoms and pathology this case is quite similar to the two fatalities described by Johnson and Murphy.[1]

FREQUENCY WITH WHICH PARASITES WERE FOUND

Name	Number of Cases	Percentage of Frequency of Parasites	Percentage of Persons
Necator americanus	28	34.2	17.2
Endameba coli	17	20.6	10.4
Endameba histolytica	10	12.2	6.1
Strongyloides stercoralis	7	8.5	4.3
Taenia saginata	5	6.1	3.1
Ascaris lumbricoides	4	4.9	2.5
Trichuris trichiura	3	3.7	1.8
Trichomonas intestinalis	3	3.7	1.8
Giardia intestinalis	2	2.4	1.2
Hymenolepis nana	2	2.4	1.2
Oxyuris vermicularis	1	1.2	0.6

Only two cases of *Giardia* infections were noticed. In one, numerous cysts were present in the stool. The organisms were then obtained in active form by securing intestinal contents through a duodenal tube. The other case was a mild infection, and the few cysts in the stool escaped observation until after the active parasites had been seen in rather large numbers in bile from the duodenum, the bile having been obtained for examination for typhoid bacilli in a case of a suspected typhoid carrier. Undoubtedly many other cases of *Giardia* infection escaped observation.

Trichomonas was observed three times, always in conjunction with other parasites, once with *Trichuris, Necator* and *Endameba coli;* once with *E. histolytica* and once with *E. coli.*

In the table are shown the number of individuals in which the various parasites were found, and the percentage of frequency of each parasite and its percentage of occurrence among the persons whose stools were examined.

1. Johnson, H. H., and Murphy, J. A.: The Toxic Effect of Hydrochloride, Mil. Surgeon **40**: 58-70, 1917.

THE DIAGNOSIS OF MITRAL REGURGITATION (VALVULITIS)

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Mitral regurgitation, which has been assumed to be the easiest of all valvular diseases to recognize, is, in my experience, the most difficult. It is essential that one define mitral regurgitation on a pathologic basis. Mitral valvular disease in this sense is assumed to consist pathologically of a true valvulitis.

The presence of a systolic murmur at the apex, transmitted to the axilla, has quite generally been regarded as evidence of mitral valvular disease. It is my opinion that entirely too much emphasis has been laid on the presence of a systolic murmur. The large number of adventitious sounds heard in examining recruits has been a matter of surprise. Deviations of the cardiac mechanism from the presumed normal are almost the rule. Systolic, apical or basic murmurs are heard in at least 50 per cent. of all men examined, especially immediately after exercise. The intensity of these apical murmurs varies greatly; usually they are soft, with only short, lateral areas of transmission. At other times, however, they are loud and rough, transmitted to the axilla and angle of the scapula, only to disappear with the decrease in the heart rate. The basic systolic murmurs, because of one's previous training and habit of thought, are usually disregarded by examiners. The apical murmurs, however, are regarded with suspicion and are not infrequently interpreted as of serious import.

In the examination of a large number of young soldiers between the ages of 21 and 31, approximately 3 per cent. are rejected for full military service because of cardiovascular conditions. It is interesting to compare the causes of rejections as submitted by various examiners. Mitral regurgitation may occupy the most prominent position or the least prominent, depending on the interpretation of the physical signs by the examiner. It is necessary that certain criteria be established in order to standardize the work. This is illustrated by the rejections of a board consisting of six medical officers, working in the same camp at two widely separate stations. At Station 1, 4,217 men were examined, and 144, or 3.4 per cent., were rejected. At Station 2, 3,777 men were examined, and 118, or 3.1 per cent., rejected. At Station 1, functional cardiovascular disorders composed 74.3 per cent. of the total rejections, while at Station 2 they composed only 49.6 per cent. This may be explained by the fact that at Station 1 we were more rigid in our criteria in diagnosing mitral regurgitation. This is evidenced by the fact that Board 1 diagnosed only seven cases of mitral regurgitation, while Board 2 diagnosed forty-six.

In the examination of 10,000 limited service men at Syracuse Recruit Camp, careful records were kept of abnormalities. Six hundred and sixteen soldiers, or 6.16 per cent., were placed in limited service because of neurocirculatory asthenia or functional cardiovascular disorder. The diagnosis of mitral regurgitation was made in thirty-three instances, or 0.33 per cent. In 191 recruits, 1.9 per cent. systolic, apical murmurs were noted. Not all systolic, apical murmurs were recorded, but only those of such a degree of intensity as possibly might be interpreted by some as of significance. In thirty other soldiers a systolic murmur was heard at the apex, which, in conjunction with other symptoms and physical signs, caused us to limit their service. This group is an intermediate one and is most difficult of interpretation. Systolic murmurs were recorded in 870 cases, or 8.7 per cent., and the diagnosis of mitral regurgitation was made definitely in only thirty-three cases, or 0.33 per cent. of the total examined. However, in contrast with these figures, some examiners report that from 15 to 60 per cent. of their rejections were for mitral valvular disease.

We have used these criteria for the diagnosis of mitral valvular disease: (1) cardiac hypertrophy; (2) a systolic, apical murmur, and (3) a definite history of one or more attacks of acute articular rheumatism (not growing pains or tonsillitis).

In my opinion, it is necessary, in order to make the diagnosis of mitral regurgitation, to have the first and second or the third and second of these criteria. The presence of definite hypertrophy always means heart disease. In the absence of cardiac hypertrophy, and even in the absence of symptoms, a systolic, apical murmur and a definite history of one or more attacks of acute articular rheumatism should be considered significant. Using these criteria, we were able to label only thirty-three, or 3.8 per cent., of the 870 cases with systolic murmurs as mitral regurgitation (valvulitis).

In the criteria used for the diagnosis of mitral regurgitation, such physical signs as an accentuated or split pulmonic second sound were purposely omitted. This physical sign per se is, in my experience, of practically no value. It is a fairly constant phenomenon in the overacting heart and is normally found in young adults. Abdominal pulsation of the type corresponding to the contractions of the right ventricle is also of no differential value. The character of the pulse, or the presence of irregularities, such as ventricular premature beats, is of even less significance. The intensity or the propagation of the murmur is at best a sign of doubtful value. It must be admitted that, given a soldier with no hypertrophy, no definite history of acute articular rheumatism and no symptoms, but with a loud, musical, systolic murmur at the apex transmitted to the axilla and angle of the scapula, because of one's previous training and habit of thought, it is extremely difficult to disregard this murmur absolutely. The plea is made, however, not to lay too much emphasis on this murmur, especially if there is tachycardia. It is my opinion that this murmur signifies more in a slow acting heart. I have observed murmurs of this kind disappear within a few hours. Only by following these cases for a period of years can sufficient data be accumulated to formulate a definite prognosis.

The differential diagnosis of mitral valvulitis (regurgitation) must be made from the following conditions: (1) functional cardiovascular disorder, disordered action of the heart, "irritable heart of soldiers," neurocirculatory asthenia; (2) accidental systolic, apical murmurs.

The differential diagnosis from functional cardiovascular disorders is not especially difficult. The absence of cardiac hypertrophy plus the accompanying physical signs of functional cardiovascular disorder, independent of the cardiac manifestations, make the differential diagnosis fairly simple. The intensity and propagation of these murmurs may not differ in any way from the type of murmur seen in true valvulitis. However, the other symptoms and signs of neurocirculatory asthenia are absent in the cases of true, organic, mitral valvulitis. Occasionally, a case of mitral valvulitis may also have a neurocirculatory asthenia complex. In this instance, the diagnosis of the combination is extremely difficult. After excluding the neurocirculatory asthenia group, we are left with a group of cases with no cardiac hypertrophy, but with the systolic, apical murmurs. This is the group that offers the greatest difficulty in proper interpretation. It is the group that in civil life it has been the rule, rather than the exception, to consider as early valvular disease. Its frequency in young adults precludes, to my mind, the possibility that many of these cases can be really organic valvular defects, but the murmurs must be interpreted as of little significance and probably of dynamic origin. It must frankly be admitted that we have no adequate explanation as to the causation of these murmurs. However, it is not a matter of great surprise that accidental murmurs occur, but that they do not occur more frequently. The function of the examining physician, in the latter group of cases, is to determine the fitness of the recruit for Army life. This can be done only by a careful consideration of each individual case. The response to a measured amount of work is one of the most practical guides. The effect of the exercise on the patient must be carefully observed. A peculiar look of anxiety and unusual acceleration of respiration are all important signs in determining the exercise response. This group separates itself into two classes on the basis of exercise response: (1) without symptoms, and (2) with symptoms.

Those without symptoms are fit for full military service. This statement is confirmed by the after-histories of a group of these soldiers (Lewis). The class with symptoms is the most difficult one to label; they are probably early cases of organic valvular disease. This class corresponds to the thirty soldiers classified as mitral valvular defect or doubtful group. Electrocardiographic evidence of left ventricular predominance or orthodiagraphic evidence of the so-called mitral configuration is of service in diagnosing these cases.

The ruling of Lewis on apical, systolic murmurs is, to my mind, sound. The systolic murmur per se is disregarded. The soldier is disqualified because of cardiac hypertrophy, not because of a systolic murmur; or is disqualified because of a poor exercise response, not because of a systolic murmur; or his service is limited because of a definite attack of rheumatic fever, and not because of a systolic murmur.

It is to be hoped that the valuable lessons learned from the examination of a large number of young adults will be reflected in the attitude of the medical profession in handling this group of patients in civil life.

SLOW INTRAVENOUS INJECTION OF ANTISERUM TO PREVENT ACUTE ANAPHYLACTIC SHOCK*

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From the beginning, the great bane of serum therapy has been serum sickness, the occurrence and severity of which can never be predicted. Individuals who do not give a history of previous sensitization often give reactions varying from death to an uncomfortable urticaria in certain diseases in which repeated doses of serum are given; and on the occurrence of successive infections, each of which call for serum treatment, the serum sickness is much more likely to occur and with greater severity.

Since the recognition of the fact that serum disease is a phenomenon of protein sensitization, or anaphylaxis, much research work has been done to find a means to prevent it, and as a result many suggestions have appeared in the literature, most of which have proved worthless or impracticable. On the basis of the fact that most anaphylactic phenomena are due to the contractions of plain muscle fibers, the administration of drugs acting on the sympathetic nervous system has been advised. Netter[1] advised the use of calcium chlorid, but Rosenau and Anderson,[2] Schippers,[3] and Wentzel[4] showed that it had no effect. Barium chlorid, studied by Biedl and Kraus,[5] and atropin, studied by Auer and Lewis,[6] on sensitized dogs, are uncertain in their action, and at any rate are not advisable for human use. Rosenau and Anderson show that a narcotic may mask but does not prevent the occurrence of severe or fatal reactions. In studies made for the analysis of the anaphylactic reaction, it was found by Sleeswijk[7] and Friedberger and Hartoch[8] that there was a diminution of complement in the blood of an animal immediately after anaphylactic shock. In order to prove the significance of this diminution of complement, to show whether it is a secondary phenomenon or whether complement takes an active part in the production of conditions that cause death, Friedberger and Hartoch made use of the fact observed by Nolf,[9] Hektoen and Ruediger[10] and others that hypertonic salt solution (from 1.5 to 2 per cent.) will prevent the combination of complement with its sensitized cells. By slowly injecting into sensitized guinea-pigs 0.3 c.c. of concentrated sodium chlorid solution just before the injection of antigen, they were able to diminish anaphylactic shock markedly, saving animals from injections that invariably killed the controls. There are, however, no reports of the use of this method in the prevention of anaphylactic symptoms in man.

Another method worked out for the most part by Besredka[11] depends on the production of the state of antianaphylaxis by giving minute single or repeated doses of antigen followed in three or four hours by the full injection. Besredka shows that the same results can be accomplished by the rectal injection of from 5 to 10 c.c. of serum, in which case there also occurs a slow, gradual absorption of antigen. While no satisfactory method for producing the state of antianaphylaxis in a sensitized person has yet been devised, owing probably to the important quantitative factors shown by the studies of Weil[12] to exist, either of these two methods of Besredka is the one usually employed in cases in which the administration of serum in the ordinary way is believed to be highly dangerous.

Friedberger and Mita[13] have suggested another method, which depends on the very slow administration rather than division of dose. They showed that many times the fatal dose of serum could be given intravenously to sensitized guinea-pigs if the serum was diluted and given slowly by a specially constructed apparatus, over a long period of time.

When it was shown that the danger and intensity of serum sickness was influenced by the size of the dose of the serum, it was an obviously logical procedure to attempt to concentrate the active elements in antiserums into as small a volume as possible. The methods of concentration developed by Gibson,[14] Banzaf[15] and others have succeeded in making it possible to produce antiserums, principally diphtheria antiserum, which have a very much higher concentration of antibodies. However, the antitoxic property of serum is closely associated with the globulins, which are at the same time closely associated with the production of anaphylaxis; and while the process of concentration does enable one to give large doses of antibodies in a small volume and thereby the occurrence and severity of anaphylaxis is lowered, serum sickness still occurs.

In the practice of serum treatment of pneumonia, which is being established more and more as a success, the occurrence of two facts causes the question of serum sickness to loom still greater as an inconvenience. In the first place, the concentration of antipneumonic serum has not been successfully accomplished as it has been for diphtheria antitoxin. And in the second place, the promulgators of the use of antipneumonic serum advise the use of large volumes of the serum (from 50 to 100 c.c.) injected directly into veins. Both of these factors are no doubt responsible for the many reports of serious anaphylaxis reaction, especially from the army camps, where many cases of pneumonia have been treated with antiserum.

A consideration of the possibilities for the prevention of these unfortunate reactions leads one to believe that the method of Friedberger and Mita, the slow protracted injections of the diluted serum, is the one best adapted to the conditions. This is especially so since we now have an apparatus in the form of the Woodyatt pump,[16] which is ideally suited for the purpose. This apparatus consists of a syringe operated by an electric motor which can be regulated to deliver accurately as small a volume as 0.1 c.c. of fluid a minute directly into the veins. By varying

* From the Otho S. A. Sprague Memorial Institute and the Department of Pathology, University of Chicago.

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16. Woodyatt: J. Biol. Chem. **30**: 355, 1917.

the rate of injection and the dilution, antiserum may be given as slowly as desired. As a matter of fact, this is one of the first uses that suggested itself for the apparatus; and communications from Woodyatt remark the necessity of the study of this procedure.

Most manufacturers resort to the addition of tricresol or phenol to serums, in order to preserve their products from bacterial contamination. For this purpose, from 0.3 to 0.5 per cent. of phenols are added. This means that the patient may receive with a single injection as much as 0.5 gm. of phenols directly into the blood stream, and with repeated injections, from 1.2 to 2 gm. in the twenty-four hours. Voegtlin[17] finds that the addition of phenols to serum not exceeding 0.5 per cent. does not impart toxic properties; but on the basis of his pharmacologic observations, he concluded that such preserved serums should be injected at very slow rates.

For the experiments, a series of dogs, rabbits and guinea-pigs were sensitized to horse serum; dogs, by being given 10 c.c. subcutaneously; rabbits, by being given 5 c.c. intravenously, and guinea-pigs, by being given 0.01 c.c. intraperitoneally. After the proper incubation period, these animals could be easily killed by a small dose of horse serum given intravenously.

ANIMAL EXPERIMENTS

Dogs.—The most characteristic phenomenon of anaphylaxis in dogs is a primary fall in blood pressure, a reaction that can be easily registered graphically on a kymograph. Sensitized dogs of about the same weight were anesthetized with ether and one-fourth grain of morphin, and kept under anesthesia through a tracheal cannula. A mercury manometer making tracings on a smoked drum was connected to the carotid artery. Injections were made into the saphenous vein. The injection of 5 c.c. of undiluted horse serum all at once into the vein caused a marked fall in blood pressure, a slowing of the heart, and slow, deep respirations. Death occurred in about fifteen minutes. Injections were made with the Woodyatt machine of 1:10, 1:40, and 1:100 dilutions of horse serum in 0.9 per cent. sodium chlorid solution. The 1:10 dilution at the rate of 0.35 c.c. a minute caused a fall in blood pressure when 0.9 c.c. had been injected. The blood pressure remained low during the five or six hours of injection, but did not kill the animal. The 1:40 and 1:100 dilutions injected at 0.35 c.c. a minute for five or six hours did not cause a fall in blood pressure during the injections. At the end of these injections when 5 c.c. of undiluted serum were given all at once intravenously, there was a fall in blood pressure showing that the animals were not completely desensitized, but enough so that death was prevented.

Rabbits.—Sensitized rabbits of equal weight were injected with 1:10 and 1:100 dilutions. The 1:10 dilution was injected at about the rate of 0.3 c.c. a minute for about six hours. The temperature at the beginning of the experiment was 40 C.; at the end it was 36 C. This rabbit died within one and one-half hours after the injection. The second rabbit was injected with a 1:100 dilution of horse serum. During the first two hours and forty minutes, 44.2 c.c. were injected (about 0.27 c.c. a minute), and in the next three hours, 163.5 c.c. were injected (about 0.94 c.c. a minute). The animal died while the injection was in progress. The third rabbit was injected with the 1:100 dilution. In eight hours and fifteen minutes, 181.35 c.c. were injected (0.3 c.c. a minute). There were no symptoms of anaphylaxis. The temperature showed no alteration. The animal was well and alive the next day, when 2 c.c. of undiluted horse serum were given all at once intravenously. There were no symptoms and no change in the temperature. When 1.5 c.c. of undiluted serum were given intravenously to a similarly sensitized rabbit that had received no preliminary injection with the machine, a very severe reaction was produced, but not death.

17. Voegtlin: Bull. 112, Hyg. Lab., U. S. P. H. S.

Guinea-Pigs.—Given intravenously, 0.01 c.c. of horse serum injected into two similarly sensitized guinea-pigs caused immediate death. With the machine a 1:1,000 dilution of horse serum injected at the rate of 0.3 c.c. a minute into a sensitized animal produced death during the third hour of the injection. Two sensitized guinea-pigs injected intravenously for six hours with a 1:10,000 dilution at the rate of 0.35 c.c. a minute (a total of 0.0126 c.c. of serum) showed no acute anaphylactic symptoms, but both animals died during the following day. In one of these animals the temperature rose from 102.8 F. at the beginning of the injection to 105.6 F. at the end of the fourth hour, and fell to 99.4 F. at the end of the injection.

The experiments with the guinea-pigs were not satisfactory because the prolonged intravenous injections into such small animals are very severe operations. The injections, rather than the action of the serum, undoubtedly caused the death of the last two animals.

CONCLUSIONS

Acute anaphylactic shock can be prevented in sensitized experimental animals by giving otherwise fatal doses of diluted antigen intravenously at very slow rates.

So far as these results can be applied to man, it is to be recommended that when immune serum must be given intravenously, it should be given slowly and in a diluted form, the Woodyatt pump serving as an excellent means of doing so. The exact quantitative relations must be worked out experimentally with patients. At present it can only be said that the injections should be made as slowly and the dilutions as high as is convenient or necessary under a given set of conditions.

BACTERIOLOGIC CONTROL IN THE TREATMENT OF STREPTOCOCCUS EMPYEMA

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In the preliminary report by the Empyema Commission,[1] the importance of the bacteriologic control of the degree of infection or sterility of an empyema cavity was duly emphasized. When the empyema patients were transferred from Camp Lee, Va., to U. S. Army General Hospital No. 12, the study was continued here, and additional observations made which may be of aid in the future therapy of this condition. What is true of streptococcus empyema should also hold true of empyema due to other organisms.

The technic of the culture method was that employed by the commission: Sterile Petri dishes are brought to the ward and in each is placed from 0.1 to 0.2 c.c. of sterile decinormal sodium thiosulphate solution (the thiosulphate is kept in a test tube with a sterile pipet passed through the middle of the cotton plug, and is sterilized by boiling or by steam pressure). When the dressings and Dakin tubes are removed by the surgeon, a long platinum wire with a standard sized loop at its end is passed into the empyema cavity *without touching the walls of the sinus if possible,* and a loopful of secretion is removed. It is thoroughly

1. Cases of Empyema at Camp Lee, Va., J. A. M. A. 71:366, 443, 1918.

washed off in the thiosulphate solution in the Petri dish. (Thiosulphate is employed so as to stop the action of any Dakin's solution that might be contained in the loop of secretion.) The plates can be kept until all the cultures of the ward are completed and then taken to the laboratory where the blood agar is poured; or, as was done at the General Hospital No. 12, the blood agar is poured directly in the ward, each plate being completed while the surgeon is finishing the respective dressing. For each plate, 10 c.c. of melted neutral agar in tubes were poured under sterile precautions into a test tube containing 1 c.c. of sterile defibrinated human blood, and the mixture emptied into the Petri dish containing the loopful of secretion. The contents are carefully and thoroughly mixed so as to make an even distribution of the growth and then incubated for twenty-four hours, after which the number of colonies on each plate is estimated.

In reporting the count to the ward surgeon, the general scheme of the Empyema Commission, with slight modification, was followed:

(*a*) Name.
(*b*) Ward.
(*c*) Plate number.
(*d*) Color (whether normal color of blood or not).
(*e*) Hemolysis. (No hemolysis or percentage of hemolysis of entire plate. For example, plates having many thousands of colonies, counted microscopically, appear almost entirely hemolyzed to the naked eye. Thus, this plate would be designated 90 per cent. hemolysis.)
(*f*) Number of colonies counted. (If the entire plate is counted, the total figure is put down; if the total figure is estimated by counting only a very small fraction of the plate, especially microscopically, the calculation to determine this total amount is placed in this column; thus, $61/20 \times 4{,}570$).
(*g*) Total number of colonies (derived from "f").
(*h*) Number of hemolytic streptococci.
(*i*) Number of hemolytic staphylococci.
(*j*) Number of nonhemolytic organisms.

At General Hospital No. 12, we made this division of hemolytic staphylococci because special attention was given to the relationship of hemolytic and nonhemolytic staphylococci to the hemolytic streptococci. No definite conclusions have been reached. While no differences in cultural characteristics of the numerous strains of hemolytic streptococci isolated have been found, the hemolytic zone surrounding the streptococcus colony varied in degree with different strains, giving the impression that the streptococci varied in their hemolytic activity.

It is fully realized that inaccuracies due to this technic are more than probable, but it has been found sufficiently accurate as a comparative guide, if always done the same way on the same patient. The difference of 700 or 1,000 bacteria in a total count is not of paramount importance. Some authorities advise the use of capillary glass pipets instead of the platinum loop so that the identical amount of secretion may be obtained each time. In many instances, however, the sinus leading into the empyema cavity is very tortuous so that the glass pipet is likely to break or secretion from the sinus instead of from the cavity may be obtained. The last contingency is to be strongly warned against, as will be shown below.

The very small percentage of contaminating organisms found is surprising. The cultures usually showed pure growths of hemolytic streptococci. Occasionally, however, when the streptococci had disappeared from the cavity, a new invader appeared, most frequently the staphylococcus. An attempt was made to find a relationship between the growth of the hemolytic streptococcus and the presence of other organisms. In many instances it seemed as if the presence of the hemolytic streptococci in large numbers excluded other organisms; and when the hemolytic streptococci disappeared, the other organisms appeared. In going over the reports of hundreds of cultures, however, this theory was not substantiated. Furthermore, test tube experiments showed no such interference in growth.

Cultures from the cavity were made every few days, in some patients every day. It was interesting to note, as has been described by the commission, that in cases in which the Carrel-Dakin treatment was having the proper effect and the empyema cavity was being sterilized, the number of hemolytic streptococci gradually diminished so that a plate which showed 90 per cent. hemolysis and contained over a hundred thousand bacteria (as is often the case in aspirated pus) would, after thoracotomy and proper Carrel-Dakin treatment for several weeks, come down to complete sterility. Naturally, it is absolutely essential to omit the flushing of the empyema cavity with Dakin's solution for at least six hours previous to taking cultures. On several occasions when the ward surgeons had been changed, a series of sterile plates was obtained because this apparently superfluous advice was overlooked.

If the gradual downward curve of the number of bacteria does not take place or if the curve has been coming down and a sudden rise occurs, some complication in the healing of the empyema cavity exists. The cause is to be found in one of several conditions:

(*a*) A secondary small pouch in direct communication with the large empyema cavity exists, and the communication is such that the Carrel tubes do not enter there; thus, there is growth of bacteria in this small pouch, which constantly feeds into the large empyema cavity from which the cultures are made. In such instances, the bacterial count takes an intermittent curve because on some days the Dakin tubes are so placed that the small cavity is disinfected and a consequent drop in the number of bacteria occurs, while on other days granulations are such that the tubes do not slip into the smaller cavity, with a consequent high number of bacteria in the next culture.

(*b*) Occasionally the necrotic tip of a rib projects into the empyema cavity, and the continuous high count of bacteria from this source persists, and clears up only after the necrotic portion either separates off or is taken care of by the surgeon.

(*c*) In some instances a persistent high count may be caused by a small gauze sponge or piece of rubber tube left in the empyema wound at the time of operation. In such cases, the cultures show types of bacteria other than the hemolytic streptococcus, either alone or in conjunction with the latter.

(*d*) At one time there was a sudden increase in the number of bacteria in almost all patients. Some who were formerly absolutely sterile began to show hemolytic streptococci or other organisms. All possible errors in the surgical technic were excluded. It was found that a fresh supply of bleaching powder was being used which was not very active and which required an entirely different proportion of sodium carbonate and bicarbonate than did the old bleaching

powder. The correction of the formula diminished the number of positive cultures. It was the surgeon, Major Moschowitz, who suspected that the error lay in the Dakin's solution, as the wounds showed too much secretion, and the granulations did not look healthy.

When the plates begin to show sterile conditions, cultures are made more frequently than twice a week; and when persistent negative results are obtained, the surgeon allows the empyema cavity to close. As to the number of sterile cultures necessary before this is permitted or the technic employed in closing the wound, each surgeon has his own method. It is agreed, however, by all, that under no circumstances is the wound to be allowed to close when the cavity is not entirely and persistently sterile, thus making the bacteriologic examination a most important factor in the proper therapy of the case.

Several additional facts have been brought out in this study:

1. The blood used for the cultures may be collected with sodium citrate solution (0.3 per cent.) to prevent coagulation, instead of defibrinating the blood. By the use of sodium citrate, very little blood is lost. At U. S. Army General Hospital No. 12, where only human blood was available and large quantities were required, it was important to waste as little as possible. In no way has the sodium citrate been found to interfere with the growth of the hemolytic streptococcus.

2. Cultures should be taken directly from the empyema cavity and not from the Dakin tubes. When these are removed by the surgeon, the ends usually contain a good deal of secretion, and one may be tempted to take cultures from here rather than to introduce the platinum loop into the empyema cavity. Comparative cultures made from the empyema cavity and from the tube always showed a much greater number in the empyema cavity, and in some instances cultures from the tube were sterile while the cultures from the empyema cavity still showed numerous hemolytic streptococci. Thus, the error of allowing the wound to close up too early is possible. This difference in number is readily explained by the fact that the ends of the Carrel tubes usually contain some Dakin's solution from the time it was last introduced into the empyema cavity, and thus disinfection continues there for a much longer period than in the empyema cavity.

3. When the empyema cavity begins to show sterile conditions, separate cultures should also be made from the sinus leading into the empyema cavity. The sinus should repeatedly be proved sterile before the cavity be allowed to heal. Numerous comparative cultures from the empyema cavity and from the sinus showed that hemolytic streptococci persisted in the sinus tract much longer than in the empyema cavity, so that if the empyema cavity is allowed to heal with hemolytic streptococci still in the sinus, reinfection of the empyema cavity is highly probable. The sinus always contains many more bacteria of all kinds than the cavity. The reason for this is as follows: The sinus is usually filled by the Carrel tubes and a short rubber drainage tube; the Dakin fluid runs into the cavity through the Carrel tubes and flows out through the short drainage tube, so that very little disinfectant comes in contact with the sinus. Disinfection of the sinus occurs only once a day, at the time of the dressing, when the whole wound is flushed with the Dakin solution. Thus it is evident that bacteria will persist in the sinus for a much longer period, in much greater numbers and in greater variety than in the empyema cavity. In one patient, repeated cultures from the empyema cavity were sterile, and the sinus showed hemolytic streptococci; but soon the empyema cavity again began to show these organisms, a condition probably due to a reinfection. On the other hand, there are cases in which hemolytic streptococci remain confined to the empyema cavity and never invade the sinus.

CONCLUSIONS

1. Bacteriologic control is of paramount importance in the proper treatment of empyema when the Carrel-Dakin method of disinfection is employed.

2. Cultures should be made from secretion obtained directly from the empyema cavity and not from the Carrel tubes.

3. Cultures, both from the empyema cavity, and the sinus leading into the empyema cavity, should repeatedly be proved sterile before the empyema cavity be allowed to close.

4. A persistently high bacterial count or a sudden increase in the number of bacteria is reasonable basis for assuming some complication in the healing of the empyema cavity.

5. Citrated blood may be used in the blood agar medium.

IRRITABLE BLADDER IN WOMEN*

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Frequent desire to urinate, slight or severe pain with or without straining when urinating, sometimes made worse by emptying the bladder and generally associated with persistent discomfort in the bladder, sufficient frequently to interfere with sleep, are the symptoms of the still other symptom that is here meant by the term "irritable bladder." The cases are generally of long standing and come with a history of prolonged and various treatment, including kidney remedies, washings of the bladder, correction of the uterus, operations on the perineum or rectum or both, and, finally if not all the time, opiates, sometimes resulting in drug habituation. As a rule these patients have lost flesh and have become highly nervous, which results in their frequent classification as "hysterics." They are as a rule sore trials to their medical attendants, the last of whom in desperation has sought relief at the hands of a consultant.

These cases represent real responsibility and call for the most serious and painstaking investigation on the part of those who assume their care. It is this fact that has caused me here briefly to review the real significance of the symptom, which, although a commonplace in our consultation rooms, is one that taxes diagnostic ability to determine not only the various pathologic conditions on which it may depend but also the actual condition on which it does depend in the given case.

GENERAL DIAGNOSIS OF IRRITABLE BLADDER

In looking for the pathologic cause of the symptom, we must remember that the underlying condition is one of abnormal sensibility of the lining membrane of

* Read before the Southern Surgical Association, Baltimore, Dec. 17, 1918.

the bladder itself. When we go back of this fact we may do well to recall that it may be caused by conditions either outside of the bladder or inside of it. Those that are outside of the bladder generally produce their effect by pressure and, for the most part, are pregnancy, displacements of the uterus, displacement of the intestine, or tumors of either the uterus or the ovaries. Displacement with sacculation of the bladder itself, often associated with a torn perineum, is to be taken into account. Infection of the fallopian tubes with resulting pressure or adhesions involving the tubes, ovaries and bladder in one mass is a frequent causative condition. Adhesions between the bladder and intestine, induced by the formation of plastic exudate on the peritoneum of the bowel as the result of a static mesenteric circulation or as a consequence of previous operation, have been repeatedly observed in my own work. Inflammation of a chronic character involving the urethral mucosa, especially the nabothian follicles, or ulcerations about the meatus or within the urethra, and urethral neoplasms and urethrocele, are conditions that cause frequent and painful urination and are sometimes taken for irritable bladder in cases in which the bladder itself is not really involved.

Among the conditions that arise within the bladder and that have a causative bearing on the symptom under consideration may be enumerated acute infection, generally gonorrheal, but often of the mixed type, the latter depending, I am sorry to say, all too frequently on careless use of the catheter. Tuberculous infection, sometimes primary but generally secondary to that of the kidney, is to be taken into consideration. Neoplasms, both benign and malignant, and calculi may be responsible for the symptom. Four of my patients with prolonged previous histories were readily relieved after discovering that the trouble was caused by diverticula. Two others had sacculated stones. In a few cases, the frequent urination was due to the fact that the bladder had become too small owing to contraction following severe acute cystitis that had been treated by caustic solutions. In a certain proportion of cases, circumscribed and very distinct ulceration, the so-called Fenwick ulcer, near the outlet was found to be the essential pathologic condition.

I have mentioned ulceration last in this brief and incomplete list of intravesical conditions because I wish to devote the most of my paper to another and quite distinct form of ulcer that I am sure deserves more consideration than it has yet received at the hands of the profession. I refer to the condition that has been described by Dr. G. L. Hunner[1] with such originality and distinctness that it has been called the "Hunner ulcer," which I would here designate by the same name if I were not opposed to calling any condition, anatomic or pathologic, by the name of any man. Dr. Hunner himself has called the ulcer "elusive" because of the frequency with which it eludes actual observation in the course of cystoscopic examination. I think it better, however, to use a term that describes some physical and consequently recognizable feature of the condition. I shall, therefore, call it the "punctate" ulcer of the bladder, as being more accurately descriptive of its size and appearance.

1. Hunner, G. L.: A Rare Type of Bladder Ulcer in Women, with Report of Eight Cases, Tr. South. Surg. & Gynec. Assn. **27**: 247, 1914; Boston M. & Surg. J. **172**: 660, 1915; A Rare Type of Bladder Ulcer, J. A. M. A. **70**: 203 (Jan. 26) 1918; Elusive Ulcer of the Bladder, Am. J. Obst. **78**: 374 (Sept.) 1918; Tr. Am. Gynec. Soc., 1918.

IMPORTANCE OF DIFFERENTIAL DIAGNOSIS

Before doing so I wish to speak of the importance of a subject which it is necessary to call earnestly to the attention of the early attendants on these patients, and that is the essential necessity of complete early examination of all bladder cases. It is not sufficient that a patient with bladder symptoms should merely recount her complaints and receive a prescription. Chronic irritable bladder, it should be taught, always depends on some definite local pathologic condition and, as I now believe, in the majority of instances, on the generally overlooked punctate ulcer. While this condition can generally be inferred from the history of the case, its importance, in view of the pain and impairment of health realized, and in view of the treatment required and benefits to be secured, demands that it never be left to a presumptive diagnosis.

CASES OF PUNCTATE ULCER OF THE BLADDER

This condition having been brought forcibly to my attention by Dr. Hunner's contribution to the American Gynecological Society in May, 1918, I recalled five cases of irritable bladder, all of them of long standing and distressing character, in which I had failed to bring more than merely temporary relief by so-called conservative methods. I accordingly sent for these patients to come in again for further investigation and more radical treatment. One, I found, had died from endocarditis following a prolonged and severe multiple arthritis. Four eagerly responded to the overture. One of these four is shortly to submit to operation. The other three patients gladly submitted to operation, and their histories are here briefly submitted as a basis for my further consideration of the punctate ulcer of the bladder, its pathology and diagnosis, and its treatment by excision of the ulcer-bearing area.

REPORT OF CASES

CASE 1.—Mrs. L., aged 34, mother of two children, referred to me by Dr. William H. Tarvin of Covington, Ky., in June, 1912, gave a history of nocturnal enuresis in childhood, for the relief of which at the age of 15 she had submitted to an operation for phimosis. The experience, she said, forced her to control the enuresis, only, however, by getting up from three to five times during the night. She was told that marriage would help; but, although she had since passed through three pregnancies, the painfulness of the bladder had continued with increasing severity. She had exhausted all the kidney medicines on the quack list and had gone to various physicians, regular and irregular, at home and abroad. When she first came to me she complained of pain in the rectum and perineum as being more troublesome than that in the bladder itself. She had to urinate on an average of once every hour, getting up four or five times at night. As a result she had lost flesh, was highly nervous, and wore a haggard look. Examination revealed the rectum free from lesion; the perineum, which had been torn and repaired, was normal, and there was no cystocele. Intense pain in the bladder was elicited by bimanual examination and even on external pressure above the pubes. The urine was clear, acid, free from albumin and sugar, and with only a slight cloud of mucus. Microscopic examination was not made; and if it had been, the real significance of its possible findings would not then have been appreciated. Careful cystoscopic examination revealed a few slightly granular bodies on the rather pale mucosa of the anterior wall. These bled on the slightest touch with a cotton applicator. I looked on the case as one of primary tuberculosis, which I construed as having occurred late in the history of an old cystitis. I resolved on what then seemed to be really radical measures. I treated the condition with thorough gauze curettage over the whole surface and constant drainage, with washings of

silver nitrate solution and lavage with sodium bicarbonate in the intervals. The result seemed almost magical, and the patient for the first time in years was free from pain and could sleep all night. This lasted for nearly three months, when all the old symptoms rapidly redeveloped. Two months later she came back and asked to have the treatment repeated. The original appearances were again found and again treated as recounted, this time, however, with less satisfactory results. From that time on she was in a condition of chronic distress, which exceeded only that of her physician who, with his consultant, had to listen to her complaints while having no means to relieve her. June 10, 1918, she returned at my solicitation. I could now find not only some of the old granular bodies or cystic follicles but also a number of punctate ulcers on the anterior wall of the bladder, which area under air pressure was at first pale and then red and then could be observed to crack slightly and bleed. The urine from each of several voidings was found to look clear, but after being centrifuged was found to contain occult blood. These findings with the previous history gave me a positive diagnosis of punctate ulcer which Hunner had conclusively demonstrated to be incurable without excision of the ulcer-bearing area. The operation was accordingly done, June 16, 1918, by the extraperitoneal method essentially after the manner described by Hunner. The convalescence was uninterrupted and the patient went home at the end of three weeks without a symptom of her former trouble. There has not been the slightest return in the six months that have since elapsed.

Case 2.—Miss G., aged 43, teacher, referred by Dr. F. L. Mitchell of Liberty, Ind., in August, 1915, had suffered with "irritable bladder" for nine years, during which time, like all others of her class, she tried all sorts of treatment. It seemed as if nothing had been omitted from legitimate medicine to the veriest quackery, and I regret to record that the veriest quackery had been quite as successful as the most legitimate medicine. My own efforts to relieve her, except very temporarily, were another addition to the chapter of failures. The relief that I did give for a time was realized by gauze curettage, cauterization with 10 per cent. silver nitrate solution, subsequent alkaline irrigations and constant urethral drainage. Only a few weeks of comfort elapsed before the symptoms returned, and they continued with such increasing severity that the only relief was realized from opiates, the doses of which had grown to 2 gm. of morphin at least three and sometimes four times a day. When I sent for her to come back I found a positive diagnosis of punctate ulcer according to the methods and indications given in this article. Excision of the ulcer-bearing area was done, June 23, 1918. In this instance, however, warned by the hemorrhage in my former case, a complication from which Hunner had lost one of his patients, I did a direct transperitoneal operation by the method which I shall describe. The patient made an uninterrupted recovery and has since been entirely well.

Case 3.—Mrs. T., aged 57, widow, the mother of eight children, was referred to me, Dec. 19, 1916, by Dr. John G. Reed of Elmwood Place, Ohio, who had just been called to the case. The bladder symptoms for which she came had been persistent for fifteen years. She had also been crippled with rheumatism for a number of years and walked with a cane. This circumstance attracted attention to her teeth. She had marked pyorrhea of long standing, with several apical involvements. This circumstance is mentioned only because of the possible etiologic bearings on the bladder condition. The cystoscopic findings were those of what I by that time had come to call chronic granular cystitis. She too, was treated, as in Cases 1 and 2, by gauze curettage, styptics, alkaline irrigation and lavage. This was followed by very marked relief, which lasted for about two months. She then became worse than before and was inclined to blame me for the result. Like the second patient, she could get sleep only by the use of opiates. The reflex pain into the rectum and perineum was especially distressing and was becoming increasingly and intolerably worse. Her general health was breaking rapidly when I requested her return. The examination now revealed all the characteristic conditions of punctate ulcer over a large area of both the anterior wall and the vortex. Excision of the ulcer-bearing area was done, July 1, 1918. The transperitoneal method was employed. The extent of the resection was so much greater than in the preceding cases that I feared the remnant of the bladder could hardly meet its functional requirements. The surgical recovery was without incident. All tenderness of the bladder had subsided by the end of the fourth week. She, however, had yet to get up once or twice during the night in consequence of the diminished capacity of the bladder. This lasted in a diminishing way for about two months more. She now retains 8 ounces comfortably and 10 ounces without much effort.

SYMPTOMS AND DIAGNOSIS OF PUNCTATE ULCER

The diagnosis of punctate ulcer is based on a consideration of the previous history of the case, the present symptoms, the urinalysis findings and the cystoscopic appearances. Other possible causative conditions of irritable bladder, already considered, should first be taken into account and excluded. The previous history of punctate ulcer is that of long duration, persistence in spite of treatment, and gradually increasing severity. The symptoms are frequent desire to urinate, painful urination, pain in the bladder with reflex pain in the perineum and rectum, often with spasm of the sphincter ani and perineal muscle. The urinalysis findings are generally negative except as to the presence of occult blood, which may be intermittent in its presence. I have found Hunner's description of cystoscopic appearance so accurate and so helpful that I give it:

> On cystoscopy, one's attention is not infrequently first arrested by a glazed, dead white appearance of a portion of the bladder mucosa. In such an infiltrated area the vessels may have a broken or "choppy" appearance, only short segments of vessels appearing in the extra pale surface. One may see a dead white scar area with a small congested area in the immediate neighborhood; and while one is examining this area, or after one has touched it, the congestion becomes marked and may even begin to ooze blood. Sometimes an area of edema appears, the mucosa taking on a deep red congested appearance and being raised above the general mucous level. This area of edema may occur immediately about the ulcer area, or it may appear on a portion of the wall at some distance from the ulcer. It may be absent at several consecutive examinations and then appear at a subsequent examination. It is particularly likely to be seen if the patient is in the midst of an unusually bad period of bladder symptoms with strangury.

In certain of these cases I have observed a slight granular appearance suggestive of primary tuberculosis, but which in the light of Hunner's researches we now know to be due to the development of minute cysts with mucous lining.

CAUSES OF PUNCTATE ULCER

The cause of punctate ulcer has not been reduced to a demonstration. In his earlier cases Hunner ventured no conjecture. This was justified in view of the fact that the condition obtained without an antecedent history of bladder infection either gonorrheal or mixed, with no childbearing and no evidence of primary tuberculosis. A little later he became impressed with a possible etiology in focal infection. This was fortified by the frequent coincident occurrence of punctate ulcer with rheumatic and arthritic conditions and by the demonstrated connection of pyorrhea and tonsillar infection with a number of his cases, as in one of the three that I present. This phase of the subject can be developed only by longer observation with a careful collation of facts.

PATHOLOGY OF PUNCTATE ULCER

The pathology of this condition, so far as it has been developed, seems to be that of a chronic interstitial nephritis involving to a greater or lesser degree all the layers of the bladder wall. The involved area seems to become chronically and statically edematous. In certain very limited areas this interstitial process encroaches on the epithelium, and by cutting off the capillary supply causes macular necroses. The areas thus deprived of their epithelium are generally round and from 2 to 3 mm. in diameter. In some instances they are slightly elongated. These minute ulcers seem smaller through the cystoscope than they do after removal. A large number of these ulcers form over a considerable area, generally on the anterior wall and the vortex, and may be from 2 to 6 cm. or more in length and from 1 to 4 cm. or more in breadth. They are sometimes associated with minute cysts of follicular origin. The underlying deep layer of the mucosa is the seat of a true hypertrophy, which by virtue of its permanent character and its influence on the nutrient supply to the epithelium is a determining factor in the incurability of the ulcers, which show no effective tendency to reparative process.

OPERATIVE TREATMENT

The clinical history of these cases, the absence of all tendency to spontaneous recovery, and the failure of all so-called conservative methods of treatment, interpreted in the light of the pathology of the condition and in the light of demonstrated recovery following operation, all point to excision of the ulcer-bearing area as the only rational method of curative treatment. The procedure devised for this purpose, while bold and radical, has the merit of being rational and the added virtue of being successful. The original procedure, as devised by Hunner, the extraperitoneal method, as I understand it, was exemplified in principle with only slight variations in detail by the various steps employed in my first case:

The bladder was filled to distention with a solution containing iodin dissolved in an iodid. The patient was put in the Trendelenburg posture. A Pfannenstiel incision was used to approach the bladder, which was easily reached. The connective tissue, however, did not yield readily in the effort to separate the bladder, especially from the peritoneum covering the anterior wall. The peritoneum was, however, pressed well down from the posterior surface, after which the edematous area, that is, the ulcer-bearing area, could be readily outlined by palpation. Considerable hemorrhage was experienced in this stage of the operation.

The bladder was now collapsed by catheterization and an ellipse of the bladder wall about 6 cm. in length and 3.5 cm. in width was freely exsected. The cut edges of the bladder wall were stretched together by means of fine chromicized catgut, care being taken that there should be no overlapping in the approximation. The peritoneum now came readily over the now resected bladder, and the incision was closed in the usual way, but with a cigaret drain. A mushroom catheter was left in the bladder. The drainage was discontinued in forty-eight hours. The bladder was washed out once daily by gently throwing into it an ounce of a 0.5 per cent. iodized water. The urethral drainage was kept up for fourteen days, the last four of which could probably be set down to excess of caution.

The second method, the transperitoneal procedure, was employed in my second and third cases. This differed from the preceding only in these particulars:

(*a*) The abdomen was opened in the median line from near the pubes to the umbilicus.

(*b*) A vertical incision was made through the cystic peritoneum, beginning on the posterior curvature of the fundus and extending forward and down in front as far as the estimated extent of the ulcer-bearing area.

(*c*) The peritoneum was then peeled back laterally until the fundus could be buttoned out through the slit.

(*d*) The distended bladder was then collapsed by catheterization and the edematous area excised.

(*e*) After this the bladder wall was closed.

(*f*) Over this closure, the peritoneum was stitched together.

In neither of these two cases was there enough oozing to justify drainage; but if subperitoneal drainage should be required, it could be done safely with either a transperitoneal cigaret drain, or by a similar drain arranged extraperitoneally and brought out through the lower angle of the incision. Drainage from the inside of the bladder, if needed, is provided for by the self-retaining catheter.

CONCLUSIONS

1. Punctate ulcer of the bladder, and the pathologic changes associated with it, is a definite clinical entity.

2. The pathologic condition is not only chronic, but also irremediable by so-called conservative methods.

3. The usual limitation of the ulcerative process to the anterior wall and vortex of the bladder makes it surgically accessible.

4. The treatment by excision of the ulcer-bearing area is justified by its demonstrated practicability and by its equally demonstrated results.

5 West Eighth Street.

EMPYEMA FOLLOWING INFLUENZAL PNEUMONIA

OBSERVATIONS ON THE EPIDEMIC AT CAMP GRANT, ILL., SEPTEMBER-OCTOBER, 1918*

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The respiratory diseases became a matter of great and sad interest in our cantonments last winter by the appearance of an epidemic of hemolytic streptococcus infection and again in the fall by the epidemic of influenzal pneumonia. Both affections are quite different from the ordinary lobar pneumonia as we used to see it in our practice, sporadically, and at times in greater numbers approaching small epidemics.

From a surgical point of view, naturally the empyema following these infections is of the most importance. Just as we grouped the pneumonia into three types, I shall here distinguish strictly between: (1) the empyema following hemolytic streptococcus pneumonia; (2) that following lobar pneumonia, and (3) that following influenzal pneumonia as we have it at present.

Last winter, when the streptococcus epidemic struck our camps, surgeons acquainted mostly with the empyema following common lobar pneumonia were of the opinion that an accumulation of pus or infected serum should be evacuated as soon as discovered, and should be drained through wide incision, preferably by costectomy. The results of such early operations in streptococcus empyema were so lamentable that the Surgeon-General sent an empyema commission to Camp Lee to study the question. The report of this

* Read before the Camp Grant Medical Society, Nov. 19, 1918.

commission[1] brought out several points: First, not to operate as long as the pneumonic process was in existence. Second, to aspirate if the quantity of serous exudation in the chest was such as to interfere mechanically with respiration. Third, to operate only after the pneumonic process had subsided, when real pus has formed, by intercostal incision or better by rib resection. These rules were such excellent ones

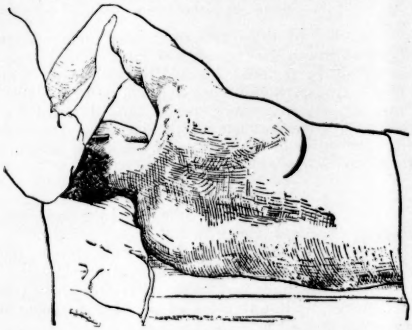

Fig. 1.—Incision made by forming a flap from 3 to 4 inches long, convexity downward, from the postaxillary line backward.

that when the Empyema Commission operated on twenty-three patients at Camp Lee, there was only one death, whereas the previous mortality had been as high as 50 per cent.

DIFFERENTIATION OF INFLUENZAL AND STREPTOCOCCUS EMPYEMA

The principle laid down for the streptococcus epidemic does not hold good for the influenza epidemic we have just passed through, for the following reasons: The exudation in the chest during the influenza epidemic does not occur early during the pneumonic process, as it did in the streptococcus type. In the latter, we had a true pleuropneumonia in which the exudate was capable of absorption. Often by the fourth or fifth day of pneumonia there was such a large amount (liters) of exudation in the chest that it imperiled respiration by its mere quantity. For these cases, early and repeated aspiration is the rule, whereas costectomy at this time was an error on account of the pneumonic process still existing, and led to a high mortality. In our present, the influenza type, we had hardly any case in which an exudate occurred during the first or second week of pneumonia large enough to cause interference with respiration. We aspirated several cases during the second week, when it was hard to decide whether complete consolidation of the lung or pleuritic effusion interfered with respiration, and never found more than 100 c.c. of cloudy serum. Also, postmortems of the many patients who unfortunately succumbed in the first few days or the second week of influenzal pneumonia did not show large pleuritic exudates; a few times 1,000 c.c. were found, but never enough to embarrass respiration by its pressure. The liters of exudate present in the streptococcus pneumonia during the height of the pneumonic process were not seen this time; therefore the question of early and repeated aspiration in this epidemic is not to be considered. In the influenzal pneumonia epidemic as we have it now, the complications of empyema do not arise before about the fourth week of the illness.

Our epidemic started, Sept. 19, 1918. Our pathologist, Capt. E. F. Hirsch, reported the first necropsy finding of small amounts of seropurulent exudate, October 9; more such cases were found, October 11. On this day the first pus in the living was found by syringe in a case of pneumonia. This patient was aspirated, but only 120 c.c. were obtained. The patient died, October 14. Necropsy revealed only 200 c.c. of the same type of exudate, but a solid consolidation, by bronchopneumonia process, of the whole left lung. The same holds good of many other aspirations at that time. The first empyema of large quantity came to operation, October 19, exactly one month after the onset of the epidemic. Here one may see again the difference between the two epidemics. In the first (streptococcus) epidemic, the pneumonic process itself is accompanied with large pleuritic exudation. In the influenza epidemic, no such early exudate occurs to any extent; there is nothing to aspirate. If an empyema follows the influenza type, it takes four weeks at least to get an exudate that can be called empyema. Before that time we may have small amounts of serofibrinous exudate, which, in my opinion, is capable of being absorbed with the subsiding of the pneumonia, as the large exudate in streptococcus pneumonia.

A second difference of the exudates of streptococcus and influenzal pneumonia is its character. With streptococcus pneumonia we have a thin, gray-reddish fluid with small flakes that change into real pus only very late. The influenzal empyema, as soon as it is of any size, is thick and purulent and contains nearly always more or less, and sometimes, indeed, very large quantities of thick, fibrinous masses. For this reason the former can be easily aspirated by trocars and small tubes. The latter needs drainage through a large opening. Even if mixed infections of pneumococcus and streptococcus are present, the prevailing one will determine the nature of the exudate. In this epidemic the pneumococcus seems to be the predominating organism, so far as our present knowledge of the bacteriology goes.

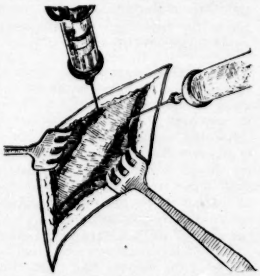

Fig. 2.—Injection of intercostal nerves along the eighth rib with a local anesthetic.

The two main differences, therefore, in the two epidemics are, first, the time of appearance of empyema, and, second, the nature of the empyema. The streptococcus empyema comes early with the pneumonia, the pneumococcus empyema follows the lung process late. The former can be easily aspirated; the latter is too thick for such handling. In the former, open operation should not be performed, but aspiration may be performed, if necessary, on account of pneumonia still existing. In the latter, because of the late appearance of the pneumonic process, operation can be performed with more safety.

1. Review of War Surgery and Medicine, Surgeon-General's Office, 6, No. 1.

DIFFERENTIATION OF INFLUENZAL EMPYEMA FROM THAT FOLLOWING LOBAR PNEUMONIA

After differentiating the present influenzal pneumonia and its empyema from the streptococcus type, we still have to distinguish the present empyema also from the one common after usual lobar pneumonia. From every point of view—the clinical observation, the frightful severity of the pneumonic process, with a death rate of more than 35 per cent., the postmortem findings of a necrotizing, bronchopneumonic process, and also some difference in the behavior of the pneumococcus as to typing, etc.—this influenzal pneumonia is different from the lobar type as we knew it. Whether a special virulent character of a pneumococcus or some other infecting agent is responsible for this difference remains to be seen. The present empyema is thus distinguished from the empyema following the usual lobar pneumonia:

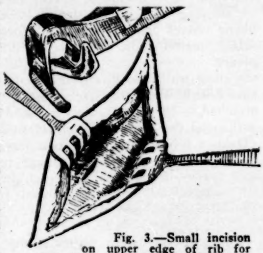

Fig. 3.—Small incision on upper edge of rib for introduction of Doyen's rib shear.

1. It is complicated more frequently by other metastatic abscesses, and for this reason is accompanied by a greater mortality.

2. In roentgen findings, fluid levels are absent. The exudate takes in the whole chest or is encysted.

3. Large lung abscesses are found frequently complicating lobar pneumonia in roentgenoscopies as well as in necropsies. In influenzal pneumonia they are not found.

As to the first of these three points, in this epidemic, the empyema is not of such good prognosis as in those we used to see in the occasional lobar pneumonia. Our death rate for empyema will probably run up to 20 per cent.,[2] and the reason for this is, as I shall show, that the empyema was in most cases only one of the complications following the pneumonia. Often the other lung became infected secondarily by a bronchopneumonic process, or pneumonic meningitis, peritonitis, cholecystitis or deep muscle abscesses existed simultaneously with the empyema. In lobar pneumonia, such complications are rare.

As to the second point, in lobar pneumonia the roentgen ray will show straight fluid levels of the pus filling the thorax; these levels will give a horizontal line in a sitting posture and a vertical line with the patient lying on his healthy side. In influenzal empyema, in seventy-five cases roentgenographed, we have never found a fluid level. The density extended more or less over the whole chest or was of the encysted type. No doubt a difference in infection causes this difference in physical behavior of the pus.

As to the third point, large lung abscesses, as we found them in lobar pneumonia, we have never seen in roentgenograms in 2,700 cases of influenzal pneumonia that we had in this epidemic at Camp Grant or in any necropsies (of which 198 were performed). In opposition to this, in perhaps fifty cases of lobar pneumonia observed at Harper Hospital at Detroit, in 1914 and 1915, we had six lung abscesses complicating recovery. In roentgenograms as well as in necropsies of the influenzal type of pneumonia we find often only small multiple abscesses following the bronchial tree and necrotizing the surrounding tissue, a carbuncle-like process never leading to an abscess of any amount.

We have seen that influenzal empyema follows late, after the bronchopneumonic process has more or less subsided, contains thick pus, and is subject to many complications. For these three reasons, operation should be performed with sufficient drainage as soon as the condition is diagnosed.

DIAGNOSIS OF EMPYEMA

The diagnosis of empyema should be based on: (1) the observation of the patient and his chart; (2) physical signs; (3) exploratory puncture, and (4) the roentgen ray. The chart of the patient is nearly always more or less typical for empyema. After the pneumonic process has disappeared by crisis or lysis, we have an intermediate period of from three to six days free of fever. Then the intermitting pus temperatures of the empyema period begin. This should call our attention to the probability of pleuritic infection. The physical signs—dulness on percussion, abolished respiratory sounds, and lessened vocal fremitus—will be always present if the empyema takes place in the whole side of the chest. But in encysted empyema enough lung tissue may lie over the pus cavity to give respiratory sounds, and air sound on percussion, and these symptoms have kept our medical friends who rely too closely on one symptom from referring patients at the proper time for operation. The exploratory needle will always show pus if the empyema fills the whole chest. But a negative finding, dry tap, should be taken with great caution for several reasons: The needle may not reach the pus. This can be prevented by using needles 3 inches long and thick enough so that they do not become plugged by fibrin masses. In some pneumonias, especially after often repeated aspiration, pyopneumothorax may exist, and the aspirating needle may reach only the air on top of the pus. This can be prevented by letting the patient roll over from his side on his back after the needle has been introduced, so that the air goes upward and the needle reaches the pus. Encysted empyemas are very hard to reach and should be punctured only after studying the roentgenograms closely to get an idea as to the location. Most of them, in my opinion, are of interlobar origin, and can usually be reached higher up in the scapular line. The finding of clear serum in the syringe does not always speak against the presence of pus, because in influenzal exudate, not infrequently sedimentation of the pus takes place, and the upper layer will be clear serum and farther down we find all transitional stages to thick pus. The last word in the diagnosis of empyema will have to be said by the roentgen ray, which fortunately, by means of the modern portable apparatus, may be employed for the examination of the most seriously ill. In classical empyema, the roentgenogram

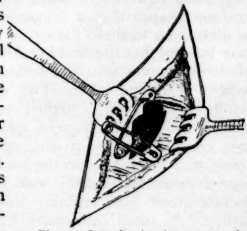

Fig. 4.—Introduction into empyemic cavity of two drainage tubes of soft rubber 3 inches long and one-half inch in diameter, pinned together in the manner shown with two safety pins, so that space is left for the introduction of Dakin tubes.

2. Jan. 22, 1919: The mortality of the influenzal empyema was exactly 19.5 per cent., including all cases of complications.

will show a density over the whole chest corresponding to the dense shadows the liver gives. Encysted empyema will show more or less circumscribed dense areas which, as to their location, should be studied well by fluoroscopy and by the stereoscopic pictures. Only in this way were we able to find pus in every one of the seventy-four cases in which we operated.

After diagnosis has been made certain, there should not be any more delay in operating; and in all these influenzal empyemas, even if encysted, the patients are in such a condition that a classical operation can be done. There is not the counterindication of pneumonia still present, as in streptococcus empyema, and an early evacuation of the pus will to some extent prevent other metastatic infections than already exist. Our friends the internists usually mention cases in which an empyema has been carried for many months by a patient without doing any harm. This is an exception and not the rule; and even this exception has to my knowledge led to deaths by sudden breaking of the abscess into previously noninfected tissue.

TREATMENT

Costectomy is the method of choice for treating the empyema following influenzal pneumonia. Aspirations and intercostal incisions should be only exploratory or temporary measures. In our seventy-eight operations of this series we aspirated only twice to relieve pressure, a day previous to the operation. Once, when a meningitis complicated the empyema, we operated by an intercostal stab.

Only local anesthetics should be employed in operations for empyema. Sudden deaths from suffocation on the table from pus suddenly breaking into the trachea have been so frequent under general anesthetics that it is criminal to give them to these patients. It may happen that the first breaking of an empyema into the bronchus occurs while the patient is on the table. Two of our patients, while being operated on, coughed up several ounces of sputum. Two postmortem specimens showed fairly free communication of the empyema with a large bronchus. Furthermore, the local anesthetic, if administered properly, is fully sufficient to permit one to operate quietly and without causing great pain to the patient. In small children, a whiff of anesthetic will suffice for the operation without abolishing the laryngeal reflex.

TECHNIC OF OPERATION

The patient lies on the side opposite to the empyema, the arm over the head to elevate the scapula away from the place of incision.

An area in the shape of a parallelogram around the rib to be resected, usually the eighth, is infiltrated with a local anesthetic, a small needle being used for the first injection, followed by a thicker needle 3 inches long to get the whole area from the same puncture hole. The infiltration takes in the skin, subcutaneous tissue and muscles. The middle of the parallelogram lies in the scapular line, and extends backward within 2 inches of the spinal line, forward to the postaxillary line. Infiltration should be deep. The incision made is between 3 and 4 inches long and curves slightly, with the convexity downward. The flap so created is turned upward, including skin, fascia and superficial muscles until the eighth rib appears clearly. Two or three muscle vessels require ligatures. The intercostal nerve, along the eighth rib, is then injected below and above the rib. This injection is made carefully so that the needle does not enter the nerve before a few drops of solution are injected; otherwise the patient will complain of severe neuralgic pain in the intercostal nerve. This injection is important; it renders the rib section practically painless.

A small cut is made on the upper edge of the rib, and a Doyen rib shear is introduced around the rib and pushed backward and forward until 2 inches of the rib are exposed. The rib is cut first anteriorly and then posteriorly. The pleura is incised in the space from which the rib piece was removed. Pus begins to appear immediately and is emptied by turning the patient slowly backward. Any obstructing fibrin masses are removed with forceps. A double drainage tube pinned together with safety pins is introduced into the pleura surrounded by two pieces of gauze in the wound of the chest wall, and this is fastened securely in the wound by two 2-inch wide adhesive straps fixated to the safety pins attached to the tubes. This is important so that no coughing will expel the tubes. If neutral solution of chlorinated soda (Dakin's solution) is used, two small Dakin tubes are introduced through the large drainage tubes. A large absorbent pad covers the whole. These drainage tubes with the surrounding gauze are not changed for a week. The outer dressing is changed when necessary. The Dakin tubes, if used, are changed daily.

If in cutting the rib, injury to the intercostal artery should happen, it is ligated by a transfixing ligature, the artery being caught central to the lesion with some of the surrounding muscle fibers. There are no sutures put into the wound, as drainage will continue better without sutures closing the ends of the wound and creating a bottle-shaped abscess cavity. The curved flap will fall into the chest wall defect after the drainage is removed, or is drawn in by an adhesive plaster strap.

Fig. 5.—Method of introducing Dakin tubes through the large drainage tubes. The latter are fastened securely in the wound with two 2-inch adhesive strips fixed to the safety pins so that no coughing will expel the tubes.

RESULTS

By this technic we have operated on seventy-nine patients. Of this number we have lost eleven, or about 14 per cent., and we shall probably lose a very few more by pyemic process; but this figure loses its significance, as to the value of the method, if I state that two of the patients that died had an extensive suppurative pneumococcus meningitis: two had empyema on the other side; one had gangrenous cholecystitis; two had abscesses in the mediastinum; two had endocarditis, and two had gangrenous bronchopneumonic processes in the other lung. No uncomplicated cases have been fatal, in spite of the fact that a good many of these patients were in a very low condition at the time of operation. Three patients with empyema on both sides were operated on in this series with an interval of two weeks in two cases and of three weeks in one case between the operations. Six of the patients living and operated on had metastatic abscesses; many had bedsores when transferred, showing the serious condition they were in at the time of operation. In 62 per cent. of the empyemas there was pure pneumococcus infection; in others, mixed pneumococcus and hemolytic streptococcus infection. The deaths were about evenly divided between the two groups. The first thirty empyema patients were treated with neutral solution of chlorinated soda. Of this group, eight died. Since then, the forty-nine remaining patients have been given dry treatment, with only three deaths.

While the first thirty patients may have been more seriously ill than the later ones, which is the case in many epidemics, the difference in the death rate speaks against the Dakin treatment. To anticipate the usual remark this statement provokes: The Dakin treatment was given in the proper way, adhering to all the details as to its administration.

In the after-care of these patients, proper attention is paid to caloric feeding, which is important to replace the immense loss of tissue substance caused by the profuse suppuration and also to fresh air and early muscle exercise. Special care is taken to elevate the arm on the operated side at every dressing, to prevent rigidity of the muscles. In the first cases of operation, healing is now taking place, one month after operation.

CONCLUSIONS

We have to differentiate in the treatment of empyema between three types:

1. The empyema following hemolytic streptococcus infection. This occurs early as an exudate in the first week of the pneumonic process, is thin, very copious, and capable of being absorbed, and should be handled, if necessary to relieve pressure, with aspiration, operating by costectomy, only after the pneumonia has subsided.

2. The empyema following lobar pneumonia. This sets in four weeks after pneumonia, is of good prognosis, and can safely be handled with costectomy.

3. The empyema following influenzal pneumonia. This also develops four weeks from the onset of the process. On account of serious and frequent metastatic suppuration, its prognosis is more severe than that of Form 2. It is best handled by thorough drainage, by costectomy under local anesthesia.

English Crime Figures.—Annual number of convictions for crime in Great Britain had fallen greatly prior to the war; since then the drop has been still more marked. Convictions, according to the British Prison Commission's report, fell steadily from 184,901 in 1908-1909 to 139,424 in 1913-1914, and during the war period the number was 104,000 in 1914-1915, 58,839 in 1915-1916, 43,678 in 1916-1917 and 32,773 in 1917-1918. The population of the prisons of England and Wales per hundred thousand in 1900 was 483.4, but has now sunk to 88.7. Convictions for drunkenness fell from 51,851 in 1913-1914 to 3,692 in 1917-1918. Those for men in the former year were more than double the convictions of women, while in the latter year convictions of women were considerably in excess of those of men. The lessening of convictions for crime is accounted for by various conditions arising out of the war, and for drunkenness on account of the restrictions on the sale of alcohol, chiefly, perhaps, notwithstanding the rise in wages and greater prosperity of the classes formerly most given to drink. A social system which could facilitate the means of employment while at the same time maintaining sobriety at its present level, would incidentally find in such measures the solution of the penal problem.—*Medical Officer.*

FRACTURE OF CERVICAL VERTEBRAE, WITH RESTORATION OF BONY SUBSTANCE

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As I was not present at the time this injury was received, I give excerpts from the written statement of the patient, who was a lieutenant in the Aviation Service:

History.—Statement by patient: "Feb. 11, 1918, about 4:45 p. m., Lieutenant M. and I, who were on a cross country flight, fell at Jennings, La. Lieutenant M. was killed instantly, and I was rendered unconscious. Local doctors treated me and shipped me back to the post hospital, Gerstner Field, La., where I was treated for a broken right clavicle, broken nasal bone and a bruised knee. Treatment continued for about six weeks, at the end of which time thirty days' sick leave was granted me. I had continuous boring headaches and pains running down my arms. I could not move my head, which was drawn over to the right side and forward. Before leaving the hospital, however, on my sick leave, roentgen-ray pictures were taken in which it developed that I had fractured fourth, fifth and sixth cervical vertebrae, with partial dislocation between the fourth and fifth. . . .

Fig. 1.—Front view of patient before treatment, showing typical deformity of dislocation of cervical vertebrae.

"On my arrival at home, Richmond, Va., I went to see a surgeon, who examined me carefully, and then sent me to another physician, who in turn sent me to another physician to have roentgen-ray pictures taken. After examination and study of these the doctor decided that the only treatment possible for my injuries was an electric baking process (thermotherapy). I then consulted my surgeon again and he sent me to Johns Hopkins Hospital, Baltimore. There I was examined by three physicians, and they decided that an operation was not necessary and that nothing could be done, but advised me to consult another doctor of Johns Hopkins. He said the bones were ground off and nothing could be done. However, he advised me to have a leather collar made, which I was to wear six weeks or more, at the end of which time I was to be treated by an electric baking process (thermotherapy). I returned to my home in Richmond, and again consulted my surgeon, who said he would write the particulars of my case to the post surgeon, Gerstner Field, La. All this time I suffered with boring headaches and pains in my arms. After my leave expired I returned to Gerstner Field, La., and went under the care of Major L. F. Luckie, M. R. C., who had, in the meantime, become post surgeon."

Examination: June 1, 1918, the patient came under my care. His head was drawn forward and to the right, the muscles were stiff and hard on the right side, and his face showed that he was suffering pain. He complained of boring headaches and pains in his arms, and stiffness of the muscles of the right side of the neck, and was very much discouraged in regard to his condition. I examined the roentgenograms that had been taken of this patient before he left the hospital on leave of absence and immediately ordered him to be placed in bed, his whole appearance showing that he was an ill man. He grew morbid, and when told that we would try to do

something for him, seemed indifferent to any suggestion of treatment.

Treatment.—Turkish towels were wrung out in hot water and applied to the patient's neck for twenty or thirty minutes, and then his neck was massaged with camphorated oil. This

Fig. 2.—Side view of patient before treatment.

was done to soften the muscles in preparation for the appliance that I was constructing for him to wear. The dentist was requested to take plaster-of-Paris impressions of the back of his head and neck and of his chin to the angles of the jaws. I then took these impressions and ran models. I obtained two

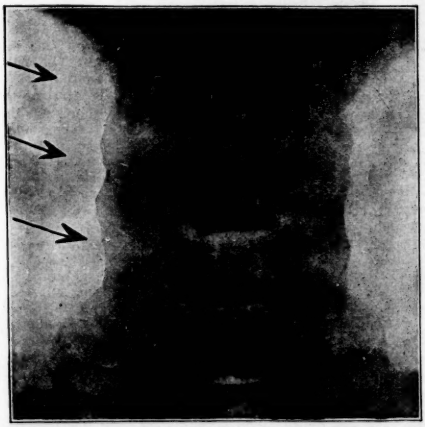


Fig. 3.—Anteroposterior view, showing fracture of vertebrae as well as dislocation of the fourth vertebra.

pieces of sole leather of medium thickness, soaked them thoroughly and placed them on the cast, burnishing them down so as to fit the cast of the chin and the back of the head. I then placed the impressions over these casts, tying them together and letting them dry in the sun. I then measured the height from the shoulder upward as far as I wished the point of the uprights on my appliance to extend, making the pattern of these from malleable metal, bent as shown in the illustrations. Pads were made for the shoulders, metal strips were made to fit these pads, and the uprights were soldered to the metal strips. These were then laced on the pads. Two pieces

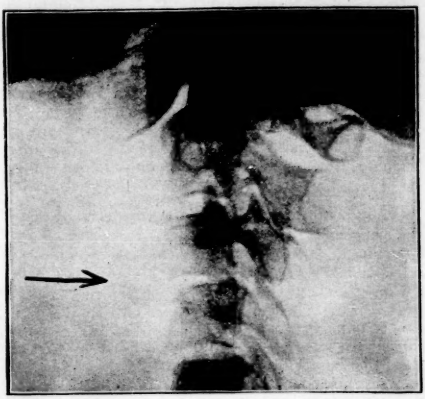


Fig. 4.—Side view, showing dislocation; by Dr. Gray, Richmond, Va.

of metal were then placed before and behind, horizontally, reaching from one metal strip to the other, set with winged nuts so the appliance would not move outward or inward. A belt was attached by leather strips before and behind and placed around the lower border of the ribs; straps were placed on the chin piece and head piece, these straps extending upward to small bolts with eyes, the bolts running through an opening in the vertical supports. The straps were threaded through the loops of the bolts and could be lengthened or

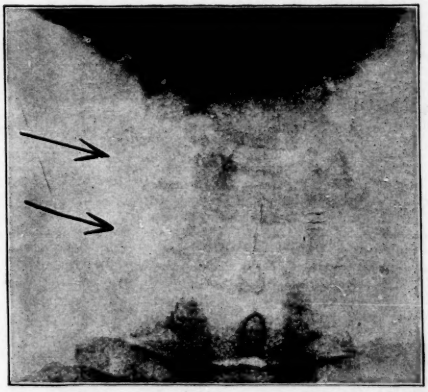


Fig. 5.—Condition after return of patient from leave.

shortened by turning the winged nuts or using buckles on straps or turnbuckles on each of the uprights, permitting raising or lowering of the patient's head. June 10, this appliance was placed on the patient, and gradually, each day, the winged nuts were tightened so as to bring the head into the proper position. The hot applications and massage were continued daily.

This appliance literally hung the patient from his own shoulders, and was the only treatment, outside of massage, that was used in this case. The value of the

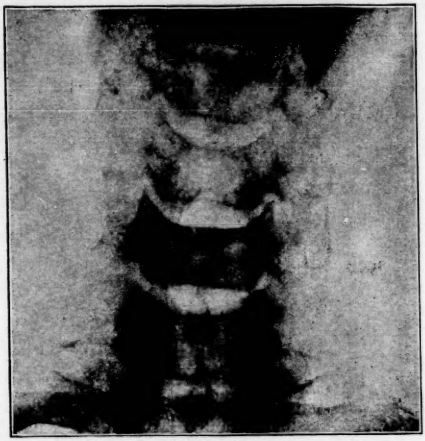


Fig. 6.—Condition, August 23, the day the appliance was removed.

appliance was that immobilization was obtained and the vertebrae were separated and held separated, so that the new bone cells were protected and growth and recalcification of bone permitted.

Another advantage of this appliance is that it permitted the patient to be out of bed, thereby keeping up his physical strength and his spirits. Another

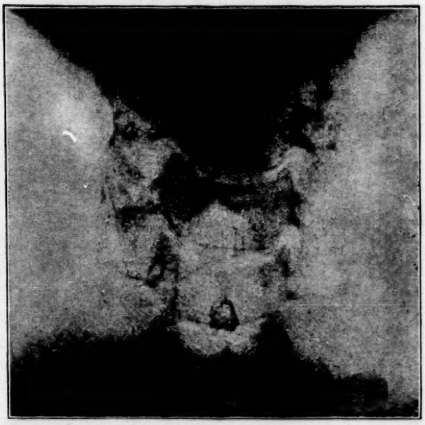


Fig. 7.—Condition eighteen days after appliance was removed.

very important advantage was that the patient never took the appliance off for massage or for sleep, thereby keeping the neck on a stretch all the time that he was under treatment.

It has been the common custom in spinal cases to place on patients a plaster-of-Paris jacket, after first stretching them by the different methods in use. After the stretch has been relieved, the patient's vertebrae rest on each other again, and the result is that few patients, if any, ever recover completely, because the bones are still grinding on the new cells that Nature is trying to form, and absorption of bony substance takes place.

In the patient's statement of his case it will be noted that he told that the bones had been ground off. This is shown in the roentgenograms.

Interesting observations that may be noted are:

1. The appearance of the patient's face before the brace was put on (Fig. 1).
2. Typical position of the head in dislocation of the cervical vertebrae (Figs. 1 and 2).
3. The absorption and ground off appearance of the bones in Figure 3, taken at this post before the patient's leave, and in Figure 4, taken in Virginia.
4. The outline of the vertebrae, after removal of the appliance, August 23 (Fig. 6), and also the condition shown in Figures 12 and 13 as compared with Figures 1 and 2.

The pain in the head and arms began to disappear twenty days after the treatment had been begun, and has entirely disappeared.

Fig. 8.—Apparatus in place: Patient hung from his own shoulders continuously.

Fig. 9.—Apparatus in place; front view.

This is the only case on record of a pilot's breaking his neck in an areoplane accident and being sent back to flying duty again. With the exception of a stiffness of the muscles from long-continued wearing of the

appliance, and ankylosis between the fourth and fifth vertebrae, which occurred before the case came under my care, this patient is in good shape and fine spirits.

Fig. 10.—Apparatus in place; rear view.

He was happy to be able to work again for his country, with new inspiration to do his work better, if possible, than before.

It may be interesting to note that he passed the low oxygen test, which carries with it the test of the eyes,

Fig. 11.—Patient dressed; shirt especially designed for wearing with appliance.

etc., by the Medical Research Laboratory, Sept. 4, 1918, and was graded in Class A, in which there are no restrictions as to altitude. The patient also took the revolving chair test for equilibrium and passed in Class A.

The appliance was made at this post, Sergeant Taylor of the machine shop doing the steel work, and the post shoemaker stitching the straps on the chin and neck piece. The idea for the appliance was suggested by the case of my father, the late Dr. J. B. Luckie, who was the first surgeon in the world to set a broken neck successfully.[1] His appliance was

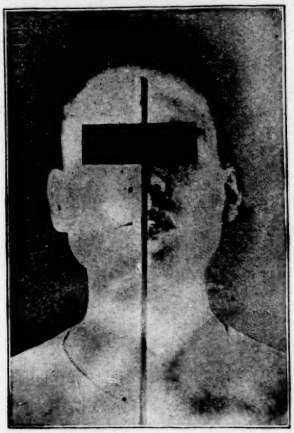


Fig. 12.—Result of treatment; front view. Compare with Figure 1.

a modified Sayre jury mast with a plaster-of-Paris jacket. Although the patient lived for twenty-six years after having had his neck set, he could never do without the appliance.

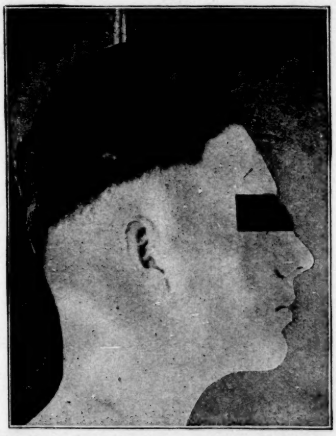


Fig. 13.—Result of treatment; side view. Compare with Figure 2.

The roentgenograms were taken by Lieutenant Corniea, M. C., of this post, and two by Dr. Gray of Richmond, Va. The photographs were taken by Lieutenant Erickson, post photographer.

1. Anomalies of Medicine, the case of Barney Baldwin. Kelly: Biographies of Great Surgeons.

Clinical Notes, Suggestions, and New Instruments

A NEW METHOD FOR THE STUDY OF BACTERIA*

W. D. FROST, PH.D., DR.P.H., MADISON, WIS.
Professor of Agricultural Bacteriology, University of Wisconsin.

The rapid identification of bacteria is a matter of the greatest importance. Certain organisms have characteristic morphology or staining reactions, but in most cases it is necessary to make a culture of the organism before it can be identified, a process that requires hours or even days.

Modifications of a method that I have already described[1] furnish a means of studying the morphology of the cells and the colonial structure of young cultures of bacteria, many of which show very interesting and, I believe, distinctive characters in a surprisingly short time, that is, in from three to five hours.

The medium in its simplest form is a 50-50 mixture of nutrient agar and sterile milk.

The apparatus is of such a simple nature that it will be found in all bacteriologic laboratories. It includes pipets, microscopic glass slides, platinum needles, an incubator, common stains, etc. The pieces of apparatus that could be called special are a "moist chamber cabinet," a warm plate for drying the films, and forceps for handling microscopic slides; but makeshifts for these are easily found in the common equipment of all laboratories.

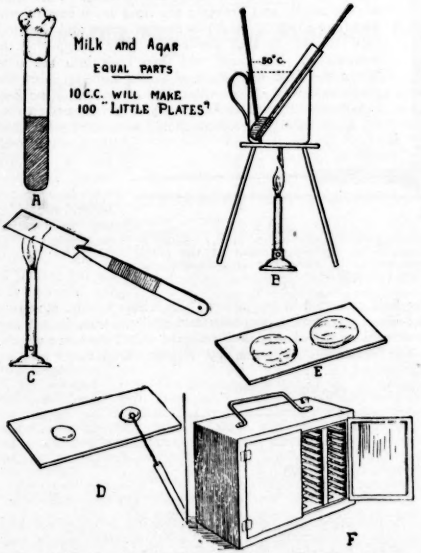


Fig. 1.—Method of making "little plates": *A*, milk and nutrient agar, sterilized separately and mixed in equal quantities; *B*, medium, melted and ready for use; *C*, flaming the slide; *D*, inoculating the medium and spreading the drops; *E*, slide ready for incubation in the moist chamber, *F*.

METHOD OF MAKING CULTURES

A clean glass slide is sterilized in the direct flame and placed on the table. When it has cooled down there is placed on it, from a pipet, two separate, medium-sized drops of the culture medium, which has been previously melted and cooled to about 50 C. Into one of the drops of the culture medium, the material containing the bacteria to be cultivated is introduced by means of a platinum loop and thoroughly mixed, while at the same time the drop is spread over the slide in a thin film. When the first drop is spread, the loop is carried over to the second drop, which is thus inoculated with a small fraction of the same material. This drop is spread in the same way as the first. As soon as this is done, the slide is put in a moist chamber and placed in the incubator. In this way two little plates are made on the same slide from each sample to be examined, containing quite different amounts of the inoculum.

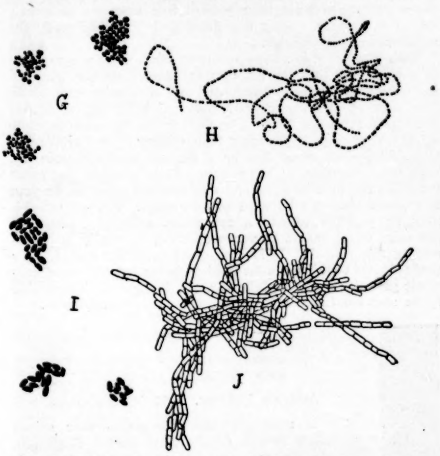


Fig. 2.—Colonies, four hours old, of organisms grown on the "little plates"; *G*, Micrococcus pyogenes var. aureus; *H*, Streptococcus pyogenes (?), from a throat culture; *I*, Bacillus coli; *J*, Bacillus subtilis. The drawings were made by Miss Margaret Brown under the camera lucida, and give the relative size as well as the shape and arrangement of the individuals in the colony.

It is necessary to work rapidly in making these "little plates" in order to prevent the agar from hardening before it is spread. It is also necessary to use aseptic technic at every step, except that I have not found it necessary to take any special precautions against air infection during the preparation of the plates, or to keep the edges and underside of the glass slides sterile. The method is illustrated in Figure 1.

INCUBATION

Immediately after being made, the little plates are put in a moist chamber where they are kept until the colonies grow to sufficient size to be examined. A few slides, as a makeshift, may be put in Petri dishes, the bottoms of which are covered with wet filter paper, on glass rods which keep them from getting wet. It is much more convenient, however, to have a "moist chamber cabinet" and when a large number of slides is used, it is quite necessary. Such a cabinet, especially designed for this work, is represented in Figure 1 *F*.

Whatever the form of the moist chamber, it is put in an incubator and kept at the temperature best suited to the needs of the organisms under study. The colonies usually attain sufficient size in the course of three or four hours to give the characteristic arrangement of the cells. If the colonies are allowed to grow much larger, the individuals become so massed that only those at the periphery are distinctly discernible, so that there is usually no advantage in large colonies.

When the "little plates" are removed from the incubator they are taken from the moist chamber and dried. The drying is an important step and is apparently best done rapidly

* A part of the expense connected with this and further work of the same kind, now in progress, was met by an unknown business friend of Madison, who made his contribution through Prof. C. S. Slichter, chairman of a university committee on research.

1. Frost, W. D.: A Rapid Method of Counting Living Bacteria in Milk and Other Richly Seeded Materials, J. A. M. A. **66**: 889-890 (March 18) 1916.

by placing the slides on a warm plate kept at a temperature just below 100 C.

STAINING

When the slides are dry, they are ready for staining. They are put first in a 10 per cent. solution of acetic acid in 95 per cent. alcohol for one minute or more. They are then drained and put in Loeffler's methylene blue diluted 1:4 with distilled water. The slides are allowed to stain from two to three minutes and are then washed free from the stain in a jar of tap water. They are dried and are then ready for microscopic examination.

With practice it is soon possible to make these preparations in such a way that the colonies are deeply stained with the individual cells well differentiated and the background clear. The best results are usually obtained after the stain has been used for some time. For this reason the stain is used, in jars, over and over, rather than poured over the preparations fresh each time. So far, a diluted Loeffler's stain has been used exclusively; but it seems quite possible that other formulas can be developed and that perhaps other stains than methylene blue can be used to advantage. For example, it may be possible to use a red stain, such as fuchsin or safranin, which would be very desirable, especially in photomicrographic work. It is also quite possible, indeed, very probable, that stains can be used to bring out the metachromatic granules in the diphtheria and other germs. The double spore and the Gram stains have been successfully used.

AN IMPROVED SPINAL PUNCTURE NEEDLE AND PRESSURE APPARATUS

ABRAHAM LEVINSON, B.S., M.D., CHICAGO

It is now generally recognized that spinal puncture is one of the most useful diagnostic procedures, and that the pressure of the cerebrospinal fluid is a useful guide in the diagnosis of many diseases of the nervous system. Many needles have been used for doing a spinal puncture since Quincke first described the procedure. In using most of the needles, however, one is unable to tell whether or not he has reached the subdural canal until he has withdrawn the stylet entirely. If the canal has been reached, the fluid comes out with a greater or lesser force on removal of the stylet, and by the time the manometer is introduced into the needle, as for instance in the Quincke apparatus (Fig. 1), too much fluid has been lost to give a correct pressure reading; for it has been found that the pressure is greatly lessened, even if only a few drops of cerebrospinal fluid have been removed.

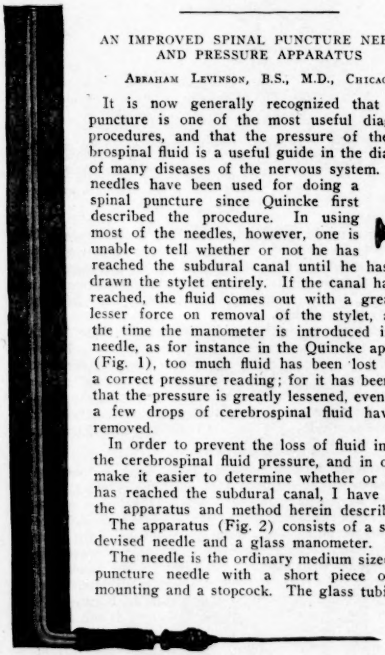


Fig. 1.—Quincke apparatus for measuring the cerebrospinal fluid pressure.

In order to prevent the loss of fluid in taking the cerebrospinal fluid pressure, and in order to make it easier to determine whether or not one has reached the subdural canal, I have devised the apparatus and method herein described.

The apparatus (Fig. 2) consists of a specially devised needle and a glass manometer.

The needle is the ordinary medium sized spinal puncture needle with a short piece of glass mounting and a stopcock. The glass tubing (*A*) enables one to see whether the spinal canal has been reached with the first puncture. One need only withdraw the stylet beyond the glass tubing, and if the spinal canal has been reached, the fluid withdrawn will be seen immediately through the glass. If no fluid makes its appearance, the stylet can be inserted again and another attempt made. The fear of breaking the glass on boiling the needle for the purpose of sterilization is no objection. I have boiled the needles repeatedly, without ever breaking the glass.

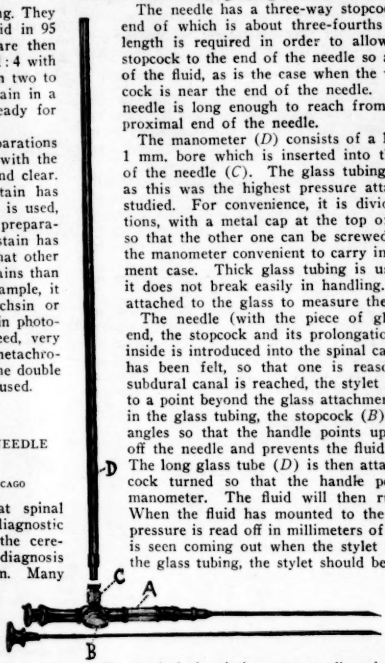


Fig. 2.—Author's spinal puncture needle and manometer: *A*, glass tubing in the needle; *B*, stopcock; *C*, upper projection of the needle into which the manometer is introduced; *D*, glass manometer.

The needle has a three-way stopcock (*B*), the distal end of which is about three-fourths inch long. This length is required in order to allow space from the stopcock to the end of the needle so as not to lose any of the fluid, as is the case when the valve of the stopcock is near the end of the needle. The stylet of the needle is long enough to reach from the distal to the proximal end of the needle.

The manometer (*D*) consists of a long glass tube of 1 mm. bore which is inserted into the projecting end of the needle (*C*). The glass tubing is 700 mm. long, as this was the highest pressure attained in any case studied. For convenience, it is divided into two portions, with a metal cap at the top of the first portion so that the other one can be screwed on. This makes the manometer convenient to carry in any small instrument case. Thick glass tubing is used for it so that it does not break easily in handling. A metal tape is attached to the glass to measure the pressure.

The needle (with the piece of glass tubing at the end, the stopcock and its prolongation) with the stylet inside is introduced into the spinal canal. After a snap has been felt, so that one is reasonably certain the subdural canal is reached, the stylet should be removed to a point beyond the glass attachment. If fluid is seen in the glass tubing, the stopcock (*B*) is turned at right angles so that the handle points upward. This shuts off the needle and prevents the fluid from coming out. The long glass tube (*D*) is then attached and the stopcock turned so that the handle points opposite the manometer. The fluid will then rush into the tube. When the fluid has mounted to the highest point, the pressure is read off in millimeters of water. If no fluid is seen coming out when the stylet is removed beyond the glass tubing, the stylet should be reintroduced until the operator feels he is in the canal. It should then be removed beyond the glass, and the measurement taken. The handle is now turned parallel to the needle and the fluid collected in test tubes. The whole needle, including the glass attachment, stopcock and prolongation, is not any heavier than an ordinary medium-sized spinal puncture needle.

The apparatus is made by Becton, Dickinson & Co., Rutherford, N. J.

30 North Michigan Avenue.

A SIMPLE ALL GLASS ATOMIZER

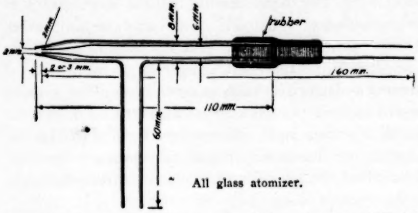
H. S. NEWCOMER, M.D. (PHILADELPHIA) AND W. S. McELLROY, M.D. (PITTSBURGH), PHILADLEPHIA

Lieutenant and Lieutenant, Junior Grade, respectively, U. S. N. R. F.

The accompanying illustration gives the construction and approximate dimensions of an all glass atomizer which may be readily constructed from ordinary glass tubing and at a cost of only a few cents. It consists of an outer piece which is an 8 mm. glass T tube. One end of the T is drawn out to a nozzle. Another nozzle, slightly smaller, is drawn from a piece of straight 6 mm. glass tubing. The latter nozzle is inserted within the first in such a way that the tip of the inner nozzle is 2 mm. behind the tip of the outer nozzle and concentric with it. The opening of the outer must be a little larger than that of the inner one so that the air stream from the inner nozzle will have an unobstructed path. The inner nozzle should be nearly in contact with the walls of the outer nozzle. Both the nozzles must be in longitudinal section slightly concave outward, and neither should be at all constricted at the tip by flaming.

The two tubes, inner and outer, are fastened together in place with a piece of rubber tubing. Under some circumstances it may be preferable to seal them together in the flame. An ordinary atomizer bulb with its tube slipped over the end of the inner tube furnishes the necessary air current. The absolute dimensions of the atomizer may be varied considerably. One exactly half the size described (about the size of the illustration) works very well.

The free leg of the T is dipped into the liquid to be atomized, or the T may be inverted and a small quantity of the liquid poured into it. The atomizer works in any posi-



All glass atomizer.

tion, is readily taken apart for cleaning, and can be boiled in a shallow dish. It is especially adapted for use with heavy oils, such as a solution of dichloramin-T in chlorcosane.

Naval Medical School.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

SULPHOICHTHYOLATE PREPARATIONS

Preparations containing as their essential constituents salts or compounds of a mixture of acids containing sulphur and designated by the group name "sulphoichthyolic acid" are manufactured from certain bituminous shales.. Sulphoichthyolic acid is characterized by a high sulphur content, the sulphur existing largely in the form of sulphonates, sulphones and sulphides. The ammonium compound of this so-called sulphoichthyolic acid—first introduced as ichthyol—has been used most extensively. Compounds with sodium and other metals, with albumin, with formaldehyde, etc., have also been introduced.

Actions and Uses.—The current estimate of the effects of sulphoichthyolic acid preparations is based almost entirely on the use of ichthyol. As it is not known to what constituent or constituents of ichthyol such effects as it may have are due, the actions of ichthyol cannot be transferred to similar preparations which differ from ichthyol in their composition. The use of sulphoichthyolate preparations is still largely empirical. They are considered weakly antiseptic and mildly irritant. They penetrate the skin to some extent and are said to cause some vasoconstriction on mucous membranes. Taken internally they produce some gastro-intestinal irritation, with diarrhea, etc. Their influence on metabolism has not been determined.

They are used locally under the supposition that they will secure the absorption of swellings and effusions in contusions, burns, etc., and especially in gynecologic practice, and in various skin diseases. They have been tried internally in a great variety of conditions, but their therapeutic value in many of their suggested applications has not been fully established.

ITTIOLO. — Ammonii Sulphoichthyolicum. — An aqueous solution, the important medicinal constituents of which are ammonium compounds containing sulphur in the form of sulphonates, sulphones and sulphides. These characteristic forms of sulphur result from the sulphonation of the tarlike distillate obtained from the bituminous shales of Giffoni Vallepiana, Italy, and containing the fossil remains of fish.

Actions and Uses.—See general article on sulphoichthyolate preparations above. The composition of ittiolo closely resembling that of the original ichthyol, it is claimed that its actions and uses are also essentially those of ichthyol.

Dosage.—Since this article is claimed to be closely similar to ichthyol its dosage is probably like that of the older preparation (see N. N. R., 1918, p. 160).

Manufactured by Societa' Industrie Chimiche, Giffoni Vallepiana, Italy (Guiseppe W. Guidi, New York, distributor).

Ittiolo is a brownish-black syrupy liquid having a characteristic empyreumatic odor and burning taste.

It is almost completely soluble in water; incompletely soluble in alcohol and ether, but almost completely soluble in a mixture of equal volumes of alcohol and ether; also soluble in a mixture of equal volumes of alcohol, water, and ether. It is miscible with glycerin.

The aqueous solution of ittiolo (1:10) is faintly acid to blue litmus. The aqueous solution (1:10) yields a greenish-black resinlike precipitate upon the addition of hydrochloric acid. This precipitate is nearly insoluble in ether; it is partially soluble in alcohol; soluble in water, but if dissolved in the latter solvent it is again precipitated by the addition of hydrochloric acid. With barium chloride test solution the aqueous solution of ittiolo (1:10) gives a brownish-black precipitate which is insoluble in diluted hydrochloric acid.

Boil an aqueous solution of ittiolo (1:10) with potassium hydroxide test solution. Ammonia is evolved.

Incinerate 1 Gm. of ittiolo. 0.14 per cent. of residue remains.

Dissolve 10 Gm. of ittiolo in 90 Cc. of water, place the solution in a glass stoppered cylinder and allow to remain undisturbed for twenty-four hours. Only a slight deposit is formed.

Ittiolo loses 51.33 per cent. of its weight when dried at 100 C.

Weigh from 5 to 6 Gm. of ittiolo into a flask, add 25 Cc. of potassium hydroxide test solution and 100 Cc. of water. Distill the mixture until no more ammonia passes over, collect the distillate in 15 Cc. of normal sulphuric acid volumetric solution to which one drop of methyl orange test solution has been added, and titrate the excess of acid with tenth-normal potassium hydroxide volumetric solution; the amount of normal sulphuric acid volumetric solution consumed corresponds to 5.16 per cent. of total ammonia (NH_3).

Weigh from 5 to 6 Gm. of ittiolo into a beaker, add 50 Cc. of water, and 10 Cc. of a ten per cent. solution of albumin, followed by 5 portions of 5 Cc. each of diluted hydrochloric acid shaking after each addition. Make up the mixture to a volume of 500 Cc. and filter through a dry filter. Heat 200 Cc. of the filtrate to boiling, add 10 Cc. of barium chloride test solution and allow the mixture to stand for twenty-four hours. Collect the precipitate of barium sulphate, heat and weigh. The weight of barium sulphate obtained corresponds to 6.2 per cent. of ammonium sulphate.

Weigh from 0.5 to 1 Gm. of ittiolo into a Kjeldahl flask, add 30 Cc. of water and 5 Gm. of potassium chlorate followed by 30 Cc. of nitric acid and evaporate the mixture to about 5 Cc.; add 25 Cc. of hydrochloric acid and evaporate to 5 Cc.; again add 25 Cc. of hydrochloric acid and evaporate to 5 Cc. Then add 100 Cc. of water, heat to boiling and add 10 Cc. of barium chloride test solution, allow the mixture to stand for twenty-four hours, collect the precipitate of barium sulphate, heat and weigh. The weight of barium sulphate corresponds to 8.87 per cent. of total sulphur. Calculate the ammonia contained in the ammonium sulphate, as previously determined in ittiolo, and subtract the result from "total ammonia" as previously determined. Multiply the remainder by the factor 1.88. The result represents the sulphur present as "sulphonic sulphur." Calculate the sulphur contained in the ammonium sulphate as previously determined in ittiolo, and subtract the result from "total sulphur" as previously determined. The remainder represents the sulphur present in the organic sulphonic acids contained in the substance. Subtract the "sulphonic sulphur" as previously calculated from the sulphur in the organic sulphonic acids, as previously calculated. The remainder corresponds to 0.66 per cent. ("sulphide") sulphur.

Ittiolo is incompatible with acids and saline solutions, fixed alkalies, their carbonates and iodides, alkaloidal salts and mercuric chloride.

QUININE ETHYL CARBONATE-MERCK. — Quininæ Æthylcarbonas. — Euquinine. — $C_2H_5O.CO.O.C_{20}H_{23}N_2O$. — The quinine ester of ethyl carbonic acid. First introduced as euquinine.

Actions and Uses.—Those of a nearly tasteless and insoluble quinine compound.

Dosage.—The same as quinine.

Merck & Co., New York, distributors. No. U. S. patent or trademark. *Quinine Ethyl Carbonate-Merck Tablets, 2 grains.*—Each tablet contains quinine ethyl carbonate-Merck 2 grains.

It occurs as a light, fleecy conglomeration of delicate white needles, which are practically tasteless.

It is sparingly soluble in water, but readily soluble in alcohol, ether and chloroform.

It is slightly alkaline in reaction, forming well crystallizable, bitter salts with acids.

Quinine ethyl carbonate melts at 89 to 91 C.

Dissolve about 0.2 Gm. of quinine ethyl carbonate in 5 Cc. of dilute sulphuric acid and dilute to 50 Cc. The solution exhibits a strong blue fluorescence, and responds to the general tests for alkaloids. Add 2 or 3 drops of bromine test solution to a 1 Cc. portion of the solution followed by 1 Cc. of ammonia water; the liquid acquires an emerald green color due to the formation of thalleoquin.

Dissolve 0.2 Gm. of quinine ethyl carbonate in 5 Cc. of nitric acid and dilute to 25 Cc. To a 5 Cc. portion add 1 Cc. silver nitrate test solution. No precipitate is formed (*chloride*). To another 5 Cc. portion add 1 Cc. barium chloride test solution. No precipitate is formed (*sulphate*).

Add 5 Cc. of iodine test solution to about 0.2 Gm. of quinine ethyl carbonate, decolorize with sodium hydroxide test solution and warm. The odor of iodoform is manifested (*ethyl group*).

Incinerate about 0.5 Gm., accurately weighed. Not more than 0.1 per cent. of residue remains.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 1, 1919

THE "HEALTH RATE" OF A NATION

Among the many lessons that the war has helped to teach, few have been more significant than the demonstration of the unexpectedly large number of persons who, from a military standpoint, are physically unfit. The more progressive nations have for some years devoted much consideration to the problems of national vitality, and sanitary science as well as practical hygiene has gained a more prominent place in the estimation and the budgets of enlightened communities. Perhaps, however, Arthur Keith was right in saying that the mistake which we have been making is that of keeping our eye too exclusively on the birth rate and death rate and neglecting what he cleverly designates the "health rate."[1] Without doubt the young men of the English-speaking nations, at least, have been shown by the elaborate physical examinations, undertaken as a part of the military arrangements of the respective countries, to be far below that ideal standard of fitness which might be expected for a virile race.

The almost appalling statistics of the examinations made in this country by the medical boards have been referred to from time to time. Keith[2] has presented the conditions that prevail in England in statistical terms which indicate the outcome of grading young men from one of the large British industrial towns. In place of having 900 men, out of 1,000, more or less fit for physical employment in civil life, only 460 could thus be counted. It may be objected that the present population of such towns and cities represents for the most part only the residue after the fit and active men have gone out to military service; but Keith ventures to assert confidently[1] that even when this possibility is taken into account there can still be no illusions as to the large numbers who are physically far below the standards for their ages.

Well defended assertions of this sort, which can doubtless be duplicated from American experiences, at once raise the question as to the most probable causes and the appropriate remedies for an admittedly undesirable condition. Broadly speaking, it resolves itself into the much debated question as to the comparative influence of environment and heredity in the development of the individual. One "expert" will tell us that the growing numbers of the physically unfit are attributable to the results of slum life, or to the necessity of wage earning by mothers who are consequently unable to look after their children. The obvious inference is that the living conditions of a large group of our population must in some way be improved. Another group of investigators will remind us, on the other hand, that there is a danger of promoting racial harm if assistance is freely granted to families without regard to their personal or moral worth, that is, their hereditary stamina, for expenditure tending to improve hygienic conditions may incidentally promote fertility. What would be more irrational than to breed unfitness in the attempt to eliminate it?

The dilemma is of more than academic interest. National health is demanding more prominent consideration than has been accorded to it either here or abroad in the past. In the United States the desirability of having the Public Health Service recognized more prominently as an independent department of the government has been widely discussed. In England the project of a ministry of health seems likely to succeed. The prime minister, Mr. Lloyd George, has awakened the imagination of the English by the terse remark that it is impossible to maintain an A 1 empire with a C 3 population. He took pains to emphasize, by way of explanation, that greater attention ought to be paid to the home, "the most important workshop in the land," because it turns out human beings, the most delicately constructed of all human machines.

Leonard Darwin, son of the eminent biologist Charles Darwin, has pointed a warning against possible misinterpretations of the widely quoted A 1-C 3 catch phrase.[3] He reminds us that if the steel of which a tool is made is not of good quality, a good article cannot be turned out even in the best workshop; that is, the child must be both endowed at birth with good racial qualities and born in a good home if the result, the finished man, is to be of the best quality. From this standpoint the progressive reformer who aims at increased national efficiency must be conversant not only with modern sanitation and the proposed devices for social uplift, but also with the investigations of the experimental biologist. Both eugenics and "euthenics," as the scheme for environmental betterment has been termed, must find a place in the new attempts to improve the "health rate" of the nation.

Even the most enthusiastic propagandists for eugenic matings among mankind realize how visionary their schemes are amid a society of present-day make-up. No one will object if postwar efforts to secure increased national vitality are directed toward pro-

1. Keith, Arthur: National Physique and Public Health, the Observer, Oct. 20, 1918.
2. London Letter, J. A. M. A. **71**: 1929 (Dec. 7) 1918.
3. Darwin, L.: A 1 and C 3, the Times, London, Jan. 1, 1919.

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moting biologically sane marriages. It seems well worth while, however, to point out, as Leonard Darwin has also done, that we must not count the C 3 man whose disabilities are due to wounds of war or accidents of peace as unfit for parenthood. The belief in the inheritance of acquired defects has long been abandoned. A wounded combatant, one of the thousands now returning to their homes, is just as likely to "be the father of heroes" as any uninjured civilian. A man's physical injuries in no way compromise the racial qualities of his descendants.

Lastly, let us not make the blunder of measuring fitness solely from the standpoint of physical prowess. Moral and intellectual virtues have often been found in relatively frail bodies. We need men and women who have a clear intellect and a tender conscience—the higher type of individual whose body is the ready servant of a superior will.

THE FAILURE OF GERMAN COMPULSORY HEALTH INSURANCE

Prior to the entering of the United States into the world war, social insurance was under general discussion in medical, public health, social reform and philanthropic circles. Eight states appointed commissions to investigate the subject and submit reports and recommendations. With the return of peace it is highly probable that this discussion will be resumed. While the American Medical Association has taken no definite stand on the fundamental questions involved, it has, by the adoption of the resolutions[1] presented to the House of Delegates in New York in 1917, indicated a minimum basis on which the medical profession will cooperate in case the plan is adopted by any state. To the majority of physicians the question is an open one on which they are keenly desirous of securing all the information possible. Much has been written in favor of social insurance from an economic and public health standpoint; many claims have been made regarding results in other countries; but little has been written in the form of definite criticism of the proposed plan and its results elsewhere. For this reason, the paper presented before the twelfth annual meeting of the Association of Life Insurance Presidents by Mr. Frederick L. Hoffman will doubtless arouse considerable discussion.

The primary purpose of the establishment of compulsory social insurance in Germany, according to Mr. Hoffman, was to hinder the rise, curtail the power, and ultimately destroy the socialistic movement in Germany. "By means of a cleverly devised terminology and downright methods of deliberate deception, the German working people were deluded into the belief" that compulsory health insurance was primarily intended for their benefit. In this way the German government hoped to bring about the complete subjection of German wage earners to the will of the bureaucratic and political machine. "All compulsory social insurance," says Mr. Hoffman, "rests on profound misconceptions of life and labor in a democracy, for it involves the establishment of permanent class distinctions." After thirty years' trial in Germany, compulsory health insurance, he asserts, has not improved the health of the working portion of the community or the standard of public health, while financially it is at present in a condition of chaos. It has increased malingering among employees to such an extent that only 26.6 per cent. of the alleged illness in Leipzig was found to be real. As to the claim of improvement in the health of employees, in 1884-1885, in Dresden when the fund was established, the percentage of employees claiming sick benefit was 30.4, while in 1913, after twenty-nine years of operation, the percentage was 32.2; in other words, the amount of illness among the insured after thirty years of insurance was greater than it was in the beginning. There were 27.7 per cent. of deaths from tuberculosis among male wage earners, as compared with 21 per cent. for the same class in the United States registration area. Regarding financial conditions, the report of the sick fund for Königsberg for 1917 shows that expenditures have increased 75 per cent. as compared with 1915, and that the assessment on wages has been raised from 4.5 per cent. to 6 per cent. to meet this increased expense. Dishonesty and deception on the part of patients, druggists and physicians, with a general undermining of the morale of the community, are also charged. Some of Mr. Hoffman's conclusions bear on the social results of compulsory insurance. It has not checked the spread of socialism in Germany, he asserts, but has increased the demand of workmen for additional benefits; it has not improved the economic condition of the German wage earner, since the benefits that it provides were never adequate to meet more than the requirements of the minimum standard of living. It has not reduced disease nor improved public health conditions. In the field of sanitary reform the United States, in the last thirty years, he declares, has advanced far more rapidly without social insurance than Germany has with it. The death rate in Germany has not diminished proportionately, as it has in this country. The condition of the medical profession in Germany has not been improved, but, on the contrary, the ethical standards of the profession have been perceptibly lowered. The sickness rate among German wage earners has not been reduced; increased demands on the funds both now and in the future will require either increased contributions from wage earners, withdrawals from the financial reserves, or both. The system has resulted in a lowering of social and individual morality and has fostered deception, dissatisfaction and dissimulation. The German experience, in

1. J. A. M. A. 68: 1755 (June 9) 1917.

Mr. Hoffman's opinion, proves the inadequacy of social insurance as an effective means of securing the required degree of continuous social progress demanded by modern standards of labor and life.

Mr. Hoffman's conclusions will doubtless be challenged by the advocates of social insurance. The charges he makes against German-administered social insurance are serious. If sustained by the evidence, they are entitled to serious consideration. In determining his attitude on the question, every physician must avail himself of all the information he can secure on both sides of the question and weigh the evidence for and against. Mr. Hoffman's paper is a specific attack on the proposed social insurance plan, and as such should be considered by the student of the subject.

THE PROBLEM OF WOOD ALCOHOL POISONING

The dangers of intoxication with methyl alcohol (wood alcohol) are beginning to be recognized more widely than was the case a few years ago when all "alcohol" was popularly assumed to be essentially similar to grain spirits in its behavior in the organism. The occasional instances of harm that attended the use of wood alcohol in the industries were scarcely sufficient to give a due warning of the danger from this substance. However, when wood alcohol began to be drunk with fatal results by the "toper" who could not obtain his accustomed alcoholic beverages, and when large numbers of serious poisonings from the use of whisky adulterated with wood alcohol came to public notice, the real menace of methylated spirits to health began to be appreciated. Both acute and chronic poisoning with methyl alcohol give rise to serious damage to the optic nerves as the most conspicuous and distressing symptom.

The foremost reason for the unlike physiologic behavior of the two commonest alcohols lies in the unlike readiness with which they are oxidized in the body. Ethyl alcohol may be excreted to a small degree through the eliminatory organs; but for the most part it is burned up much as are the ordinary foodstuffs. Hence the contention that alcohol may be a food. Methyl alcohol, on the other hand, is oxidized with difficulty. More than half of a nontoxic dose may find its way out of the body again through the respiratory channels. Furthermore, the progress of the elimination of the unoxidized portions is comparatively slow, so that the output from a single dose may even continue during an entire week. As a consequence of these features—deficient oxidation and slow elimination—the poison delays in the organism unduly long to continue its detrimental effects.

The fact that a portion of the nervous system—the optic nerve—is especially affected by methyl alcohol naturally suggests that this substance has a preferential affinity for the nervous tissue. Recent researches of Pohl[1] at the Pharmacologic Institute of the University of Breslau indicate that this suspicion is not verified. It almost seems, says Pohl, as if no organ retains so little methyl alcohol as does the brain. We must therefore assume that the nervous system is peculiarly sensitive to the toxic agent rather than that it is unduly overwhelmed by larger quantities concentrating in this tissue.

The prospect of effective treatment in the case of an agent exhibiting this peculiar behavior is not particularly promising. Pohl found in the case of animals poisoned with wood alcohol that a combination of bloodletting and injection of Ringer's solution seemed to decrease the concentration of the poison in vitally affected tissues. A similar result followed the introduction of charcoal subcutaneously into the body, this substance apparently serving to remove part of the unexcreted alcohol by specifically adsorbing it. Such procedures, interesting as they are in pointing the way to the possibilities of treatment, are far from practicable in the exigencies of human cases.

DENERVATED MUSCLE ATROPHY

When a motor nerve is severed, the muscle which it supplies enters into a state of inaction, so far as its usual contractile function is concerned, and muscular atrophy gradually ensues. Ultimately the nerve may regenerate so that a functional connection with its muscles again becomes restored. Obviously it would be of enormous physiologic advantage if the intervening muscular atrophy could be wholly or in part averted. Attempts at a successful therapy to prevent the disaster that follows the nerve injury and may be termed denervated muscle atrophy have not been wanting. The earliest efforts were based on the disuse theory—the belief that the wasting of the denervated muscle is due to the lack of exercise. Three quarters of a century ago in an experimental study of the problem, John Reid undertook to supply the supposedly needed activity by inducing contraction in denervated muscle by means of electrical stimulation; likewise the versatile Brown-Séquard attempted to avert the impending atrophy by the use of the galvanic current, which he assumed might not only keep up the muscle weight by the contractions induced, but also have some direct influence on the chemical changes similar to that produced by the nervous agent in the muscle. Evidently the vague "tropic" influence of the nerves on muscles was in the mind of the investigator. A recent review[2] of the situation in Brown-Séquard's time says:

> In man, the production of contraction in paralyzed muscles was not found to prevent atrophy, but it was generally thought to delay it. The theory was contested by many on the ground

1. Pohl, J.: Versuche zur Entgiftung des Methylalkohols, Arch. f. exper. Path. u. Pharmakol. **83**: 204, 1918.
2. Langley, J. N., and Hashimoto, M.: Observations on the Atrophy of Denervated Muscle, J. Physiol. **52**: 42, 1918.

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that the rate of loss of weight and the changes in the muscle after nerve section were of a different order from those occurring in disuse of the muscles arising from cerebral paralysis and from certain lesions of the spinal cord. On the other hand, it was argued that in these cases reflex and tonic contraction were not abolished, and the disuse only partial. Thus whilst, in general, disuse was held to account for a part only of the atrophy, the inactivity theory still had supporters.

Another theory subsequently unfolded led to the practice of massage and passive movement in cases of nerve severance in man. It was based on the observation that there is very little lymph flow in a normal quiescent muscle, and that the flow of the lymph is increased by movement. Here, then, seemed to lie a possibility for promoting the nutritive exchanges in an active muscle. In contrast to all of these views, Langley[3] of Cambridge, England, has suggested that the atrophy is due to the continuous fibrillation that occurs in a denervated muscle. Since certain salts, like those of calcium, are known to stop fibrillation, Langley and his co-workers have attempted to apply the fact to the treatment of denervated muscle. Feeding the salts having proved impracticable or of no avail, ionization schemes by means of electric currents have been attempted. The practical difficulties of this plan are almost insuperable, since the currents required to stop the fibrillation in the deeper parts of the muscles are stronger than the skin will bear without undergoing abnormal changes.

After a trial, in an elaborate experimental way, of the various forms of treatment proposed, Langley and Hashimoto[2] have gained the general impression that none of the methods of treatment of denervated muscle now in use—passage of galvanic current, production of contraction, passive movements and massage—can have more than a slight effect in delaying muscle atrophy. The only direction of promise at present consists in continuing the time-consuming experiments on animals, in the hope of discovering new leads. As the Cambridge physiologists remark, the conditions in man allow of very little exact observation. The time of recovery, from six to ten months, varies so greatly with the unascertainable conditions at the point of suture that any influence there may be of other treatment is completely dwarfed. Connective tissue growth may easily be caused, and on that account measurement of the limbs at intervals of stimulation is a very insecure basis for estimating growth of muscle; moreover, if there were a growth of the muscle it would mean that the atrophy could be prevented altogether, and no one now, so far as we know, claims that this can be done.

The only remaining method in man is to compare the electrical irritability after the muscle has been left alone with that after it has been treated, a method by no means valueless, but one in which the experimental error is very large.

3 Langley, J. N.: J. Physiol. 50: 337, 1916.

Current Comment

THE EFFECT OF INDUSTRIAL EMPLOYMENT ON MATERNITY

In the *Monthly Labor Review* for November, 1918, published by the Bureau of Labor Statistics of the United States Department of Labor, appears an abstract on the Effect of Industrial Employment of Women on Maternity. It is based on a report published by the Women's Industrial Council of London, in a recent issue of the *Women's Industrial News*. The problem undertaken was to discover, if possible, whether industrial employment affected a woman's capacity for successful maternity, and whether, if it did, it was due to industrial work per se, or to some particular kind of work. In order to secure authoritative information the investigation was confined to mothers under the care of some recognized authority, as schools for mothers, infant welfare centers, and maternity wards of hospitals. The first plans, including full particulars as to hygienic, occupational, domestic and personal conditions before marriage and before and during pregnancy, proved too ambitious, as practically none of the institutions kept sufficiently full records of the items involved to be able to contribute any valuable information. Only 934 cases were included in the study, so that the data available are not sufficient on which to base any definite conclusions. Some interesting observations, however, were made. As in many other health problems, the fact that most strongly impressed itself on the investigators was that practically no real data on the subject exist, and that the first step in any effort to solve the problem of the effect of employment on maternity is to acquire accurate knowledge of the influence of employment on the health of mothers and infants. Observation and the recording of facts must necessarily antedate marriage and pregnancy by a considerable period in order to form any sound basis of comparison. The inquiry into the effects of different kinds of employment also was unsatisfactory. A questionnaire sent to physicians, matrons and nurses at maternity hospitals, midwives, and visitors and superintendents of infant welfare centers produced the usual indefinite replies, based partly on fact and partly on prejudice or general impression. Such data as could be recorded and tabulated were also vague. Dividing the mothers according to whether they had or had not been industrially employed during pregnancy, it was found that the proportion of living children, children who had died, and stillbirths was almost the same for the two groups. Regarding the character of occupation, it was found that out of 331 mothers industrially employed during pregnancy, 213 employed in active occupations furnished eighty-three "bad" cases of labor, or 39 per cent.; eighty-eight women employed in sitting occupations furnished twenty-three "bad" cases, or 26 per cent., while thirty women employed in standing occupations furnished only two "bad" cases, or 6 per cent. "Bad" cases were defined as those in which (*a*) 25 per cent. or over of the children died; (*b*) the mother had a difficult or complicated confinement, or

(*c*) the infants born were not healthy. These figures, while interesting, are, as the investigators recognize, too few on which to base any definite conclusions. An interesting comment is made on the relative effect of industrial occupation versus domestic activity; attention is called to the fact that writers on infant mortality and the birth rate lay great emphasis on the evil of manual labor in factories, but say little if anything of the results of the incessant drudgery of domestic labor: "People forget that the unpaid labor of the working woman at the stove, at scrubbing and cleaning, at the washtub, at lifting and carrying heavy weights, is just as severe manual labor as many industrial operations in factories." The only definite conclusions by the investigators are that they are able to find no difference between domestic work and industrial work, nor any reason for prohibiting any woman from undertaking any kind of healthy employment of which she feels capable.

TETANY AND ALKALOSIS

To Wilson and his co-workers[1] at the Johns Hopkins Medical School belongs the credit of having directed attention to the possible physiologic and pathologic significance of alkalosis, a condition in which the equilibrium between acids and bases in the blood is displaced in favor of the bases. Alkalosis accordingly is the antithesis, so to speak, of the more familiar condition of acidosis. This abnormal preponderance of bases was described as the sequence of removal of the parathyroid organs, and makes its appearance with the onset of tetany. The latter can be relieved by the administration of acids with consequent restoration of the usual acid-base equilibrium in the organism. Furthermore, it is easy to believe that the tetany itself, leading to the production of acids through the muscular performances, will serve to relieve the condition of alkalosis and thus act as a corrective to the circumstances that initiate the tetanic outburst. At the Harvard Medical School, McCann[2] has verified the fundamental facts just referred to. His experiments in parathyroidectomy also show an increase in the ability of the plasma to combine carbon dioxid coincidently with the development of tetany. This may be interpreted as being due to an increase of the basic over the fixed acid radicals in the blood, as compared with that of normal animals. McCann has ventured further to consider the possibility of alkalosis in relation to gastric tetany. Experimentally he observed that, following operations on the stomach which exclude the acid secreted from the duodenum, tetany develops accompanied by an increase in the carbon dioxid combining power of the plasma similar to that of parathyroid tetany. Administration of acid intravenously or through the duodenum produced favorable responses toward more normal conditions. Various possibilities have been expressed in explanation of the mechanism by which the acid-base equilibrium may become displaced at times. Both the kidneys and the pulmonary ventilation may be concerned. McCann, however, has gone farther to interpret gastric tetany as a condition of alkalosis, in which a disproportion between the rates of secretion of acids and alkalis by the gastro-intestinal tract may be a factor. Clinically gastric tetany is most apt to occur, as McCann reminds us, in those cases in which there is some pyloric obstruction. The secretion of hydrochloric acid by the stomach, provided the acid does not pass into the duodenum to excite the alkaline intestinal secretions, might be expected to leave the blood with an excess of basic substances.

1. Wilson, D. W.; Stearns, T., and Janney, J. H., Jr.: J. Biol. Chem. **21**: 169, 1915. Wilson, D. W.; Stearns, T., and Thurlow, M. D.: J. Biol. Chem. **23**: 89, 1915.

2. McCann, W. S.: A Study of the Carbon Dioxid Combining Power of the Blood Plasma in Experimental Tetany, J. Biol. Chem. **35**: 553, 1918.

THE MILK SUPPLY IN ENGLAND AND IN AMERICA

If milk is really vital to national health and efficiency, it can well be understood why the United States Food Administration warns the American people to do everything to prevent in this country the tragic results that are following the cutting down of milk consumption abroad. To quote the words of the Food Guide,[1] it is most unfortunate that ignorance of the value of milk makes people particularly sensitive to a change in its price. When it goes up even a cent a quart, many cut down their consumption, while a considerably larger advance in the price of meat will make little difference in the amount bought. That there is an actual decline in the use of milk in some of the large cities seems to be attested by statistics.[2] Dr. Dorothy Reed Mendelhall[3] of the Children's Bureau, U. S. Department of Labor, has pointed out that in the United States the price of bread is controlled, while that of milk is not. Price fixing has its unforeseen difficulties that concern the indispensable producer on the one hand and the dependent consumer on the other. Mr. Hoover has asserted that obviously our people must have whatever food is necessary and must have it at prices that they can meet from their wage. If we are to have ascending prices, we must have ascending wages. But as the wage level rises with inequality, it is the door leading to strikes, disorder, riots, and defeat of our national efficiency. We are thus between two fires—to control prices or to readjust the income of the whole community. The verdict of the whole of the world's experience is in favor of price control as the lesser evil. We shall not venture any opinion as to what can be done in the area of commerce between the producer and the retailer. In England a milk order empowered the local authorities to arrange for the supply of food and milk to the "priority" class of mothers and children; and according to Dr. Mendenhall they were permitted to obtain it at a low price, the deficit incurred being charged to grants for maternity and child welfare. In this country we have obtained bread at low prices without the subsidy that

1. Food Guide for War Service at Home, prepared under the direction of the United States Food Administration, New York, Charles Scribner's Sons, 1918.

2. Milk Prices and the Poor Wage-Earner, Weekly Bull., Dept. of Health, City of New York, Nov. 3, 1917; Studies of the Use of Milk by Families Having Little Children, Children's Bureau, U. S. Dept. Labor.

3. Mendenhall, Dorothy R.: A Memorandum on Milk, Am. J. M. Sc. **156**: 586, 1918.

was found necessary in England. Perhaps milk also can be kept within purchasable range for all by some sort of voluntary agreement, such as Mr. Hoover has so judiciously brought about in other instances. But whatever may be the device needed, let us not only conserve our dairy herds and enhance the milk supply, but also make certain that it becomes available to the children of America.

CAUSE OF DENTAL CARIES

Although considerable difference of opinion exists with regard to the influence exerted by oral sepsis on the general health, there is no disagreement as to the harmfulness of dental caries. There may be skepticism regarding the statements of well known medical practitioners that oral sepsis is the *fons et origo* of the majority of systemic diseases, but there can be no denial of the fact that dental caries is a serious condition, tending to ill health. The inability to masticate food properly when dental caries is present is sufficient in itself to demonstrate this. When a person cannot chew food thoroughly, digestive disturbances may occur not infrequently. It is generally supposed that people leading a primitive life suffer little with their teeth. This is true to a large extent. However, even natives of Africa living in a cleanly, natural manner are by no means immune to dental caries. Dr. Stannus[1] examined the entire population of a series of villages in the West Nyasa District of Nyasaland. Their diet was chiefly cassava made into porridge and some eaten raw, other constituents being ground nuts, fish, a little maize or millet, flour porridge, green vegetables and bananas. Of 1,311 persons examined, 1,038 of whom were adults, 8.6 per cent. showed caries. Stannus concluded that native Africans have no immunity to dental caries, and that the same causes and predisposing conditions are the source of caries among them as among people of civilized countries. The small comparative incidence of caries among natives living under natural conditions is due to the absence in large proportion of those predisposing conditions found in civilized races, irregular dentition, lack of proper mastication, and want of the use of the teeth, owing to the eating of soft foods. It has been urged by many that one of the main causes of dental caries is the eating of food that requires little mastication, and that consequently dental caries has increased greatly because in civilized countries so much soft food is consumed. Dr. Harry Campbell of London may be termed the high prophet of this propaganda, and he preaches in and out of season of the injury to the teeth and to the health done by eating "pappy" food. The teeth were intended to be freely used in the mastication of hard food. When they are not so used they tend to decay, and the general health suffers.

1. Stannus: Brit. Dent. J. **35**: 729-741 (Sept. 15) 1917.

Hygiene and the State.—The health laws of the state to be effective must be supported by a people trained to understand and trained to obey these laws. The hygiene of the state as a whole cannot be better than the hygiene of the people who make the state. An effective physical training of the individual is then a contribution in the service of the state.—T. A. Storey, M.D., Ph.D., on Physical Training.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending January 24 there were in the Medical Corps of the Army 24,348 officers, a decrease since the previous week of 523. By rank there were two major-generals, six brigadier-generals, 223 colonels, 481 lieutenant-colonels, 2,331 majors, 8,473 captains and 12,832 first lieutenants. In the Medical Reserve Corps there are now 626 officers. Discharges since the beginning of the war include 9,263 officers.

Weekly Bulletin A. E. F.

Weekly Bulletin No. 39 of the American Expeditionary Forces, dated Jan. 6, 1919, gives a summary of certain communicable diseases in the A. E. F. during 1918. There were 30 cases of anthrax, almost all traced directly to shaving brushes. There were 185 cases of chickenpox; 3,456 cases of diphtheria; 863 cases of amebic and bacillary dysentery of proved type; 5,953 cases of measles, with a monthly rate per 100,000 varying from 14.4 in February, 1918, to 358 in January, 1919. There were 1,469 cases of meningococcus meningitis and 1,460 cases of scarlet fever. There were nine cases of smallpox and 579 cases of typhoid fever and paratyphoid fever. The monthly rate for typhoid and paratyphoid varied from 0.0 cases in February, 1918, to 11.1 cases in July, 1918. Most of the cases occurred in two small epidemics and in scattered cases following the Argonne offensive. The weekly review states that typhoid is still increasing, and that more new cases of typhoid than of any other of the communicable diseases have been reported during the past week. Diphtheria, measles, meningitis and scarlet fever show a reduction since the previous week.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L., signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

ALABAMA

Adamsville—Miller, J. A. (L.)
Alexander City—Street, T. H. (C.)
Bayon La Batre—Cogburn, H. R. (C.)
Birmingham—Cameron, A. C. (C.)
Garrison, J. E. (C.)
Green, A. C. (L.)
Moore, C. H. (L.)
Camden—Jones, J. H. (C.)
Jones, T. W. (C.)
Dalesville—Windham, L. A. (L.)
Dothan—Ellis, J. T. (L.)
Ensley—Gaston, A. L. (L.)
Enterprise—Gibson, E. L. (L.)
Mobile—Dodson, J. H. (L.)
Haas, T. D. (L.)
Jones, R. C. (L.)
Winthrop, G. J. (C.)
Oakman—Woodson, J. L. (C.)
Patton—Chilton, D. H. (L.)
Selma—Jones, L. (C.)
Whistler—Gay, N. S. (L.)

ARIZONA

Jerome—Kaull, L. P. (C.)
Morence—Rice, H. W. (L.)
Phoenix—Monical, G. E. (C.)
Willcox—Wilson, J. C. (L.)

ARKANSAS

Casa—Brooke, H. C. (L.)
Eldorado—Purifoy, L. L. (C.)
Fordyce—Harrison, F. E. (C.)
Fort Smith—Riddler, P. A. (L.)
Hope—Weaver, R. E. (L.)
Huntsville—Roberts, D. C. (L.)
Lockesburg—Graves, J. C. (L.)
Magnolia—McLeod, G. F. (L.)
Mena—Holt, E. E. (C.)
Monticello—Pope, M. Y. (C.)
Newport—Jones, O. E. (C.)
Round Pond—Powell, C. V. (L.)
Thornton—Rhine, T. E. (L.)
Turrell—Webb, F. (L.)
Waldo—Andrews, S. C. (L.)
Walnut Ridge—Land, J. C. (L.)
Winslow—Gray, T. E. (L.)

CALIFORNIA

Alhambra—Hull, J. F. (C.)
Burbank—Thompson, E. H. (C.)
Calistoga—Lewis, C. E. (C.)
Downey—Haygood, A. G. (C.)
Folsom City—Wahrhaftig, M. J. (L.)
Fort Jones—Milliken, A. A. (L.)
Holtville—Wimp, W. H. (L.)
Ingelwood—Anderson, L. N. (C.)
Los Altos—Coleman, E. H. (C.)
Los Angeles—Baker, C. D. (C.)
Bishop, F. C. (L.)
Dale, H. M. (C.)
Dunton, W. A. (C.)
Early, C. E. (L.)
Edgerton, H. W. (C.)
Frank, M. S. (L.)
Garland, J. A. (C.)
Gilbert, W. H. (C.)
Holman, W. P. (C.)
Huntoon, H. A. (C.)
Laubersheimer, G. A. (C.)
MacLaughlin, W. E. (C.)
Mitchell, H. B. (L.)
Monteleone, J. (L.)
Moore, A. W. (C.)
Pallette, E. M. (C.)
Pinkerton, B. G. (C.)
Shea, J. R. (L.)
West, F. B. (L.)
Wilson, L. E. (L.)
Wissig, S. L. (C.)
Zerfing, C. E. (L.)
Madera—Ransom, D. H. (L.)
Modesto—Falk, E. V. (L.)
Oakland—Dewitt, J. W. (L.)
Fearn, J. R. (C.)
Liliencrantz, G. H. (C.)
Makinson, H. A. (C.)
Ontario—Titus, J. H. (C.)
Oroville—Newbold, E. H. (L.)
Palo Alto—Power, H. (M.)
Quincy—Lasswell, B. J. (L.)
Sacramento—Cameron, H. M. (M.)
Parkinson, J. H. (C.)
San Bernardino—Savage, P. M. (C.)
San Diego—Riggs, L. D. (L.)
San Francisco—Bergener, G. J. (C.)
Brendel, F. P. (C.)
Cross, C. (M.)
Dougherty, J. A. (L.)
Fractman, M. B. (L.)
Francoz, M. A. (L.)
Friedman, A. (L.)
Kroll, F. W. (C.)
Moore, W. L. (C.)

San Francisco—Mugler, F. R. (L.)
Nelson, J. A. (C.)
Painton, H. R. (C.)
Poheim, J. F. (C.)
Sherman, H. M. (M.)
Zunwalt, E. R. (L.)
San Jose—Dickinson, A. E. (L.)
Gerlack, F. C. (C.)
Santa Clara—Rose, L. M. (L.)
Santa Paula—Merrill, B. E. (C.)
Sonora—Pleth, V. (C.)
South Pasadena—Root, F. R. R. (C.)
St. Helena—O'Connor, J. H. (C.)
Taft—Jones, E. A. (C.)
Venice—Atkins, S. M. (L.)
Whittier—Rosenberger, H. G. (L.)

CANAL ZONE

Ancon—James, W. M. (M.)
Kupfer, N. B. (L.)

COLORADO

Colorado Springs—Hartwell, J. B. (C.)
Morrison, C. S. (C.)
Denver—Enos, C. (L.)
Jones, S. F. (M.)
Markley, A. J. (M.)
Fort Collins—Kickland, W. A. (C.)
Norton, D. O. (C.)
Grand Junction—Taylor, A. G. (C.)
Johnstown—Grantham, O. A. (L.)
La Junta—Mendelson, R. W. (C.)
Pueblo—Lucas, W. (C.)
Stoddard, T. A. (C.)
Salida—Bender, A. J. (L.)
Fuller, C. R. (L.)
Silverton—Condit, E. G. (L.)

CONNECTICUT

Bridgeport—Day, F. L. (L.)
Havey, L. A. (L.)
Pasuth, B. C. (L.)
Derby—Roberts, H. A. (L.)
New Haven—Blake, E. M. (C.)
Dryfus, M. L. (L.)
Grodzinsky, H. W. (L.)
Plainville—Frost, L. H. (L.)
Rockville—Dickinson, F. M. (C.)
Stanford—Hewitt, A. F. (L.)
Waterbury—Fruin, J. W. (L.)
Gosselin, G. A. (L.)
Root, J. H. (L.)

DELAWARE

Harrington—Bringhurst, J. (C.)
Milford—Lofland, J. P. (C.)
Wilmington — Rutherford, J. B. (C.)

DISTRICT OF COLUMBIA

Washington—Baier, G. K. (L.)
Martel, L. A. (C.)

FLORIDA

Arcadia—King, F. R. (C.)
Homestead—Lanier, W. T. (L.)
Jacksonville—Acker, A. E. (C.)
Ward, J. F. (L.)
Wilkinson, A. H. (L.)
Sorrento—Callahan, O. L. (M.)
St. Petersburg—Randall, G. M. (C.)
Raymond, H. L. (C.)
Tampa—Larner, L. G. (L.)
Wauchula—Cline, H. E. (L.)
West Palm Beach—Peek, L. A. (C.)

GEORGIA

Americus—Grubbs, L. F. (C.)
Arlington—Sharp, C. K. (C.)
Atlanta—Craig, N. (C.)
Flowers, A. P. (C.)
Floyd, J. (C.)
Keeling, L. J. (C.)
Manget, J. D. (C.)
McAliley, R. G. (C.)
Augusta—Freeman, W. T. (L.)
Malone, H. H. (C.)
Berlin—Edmonson, H. T. (L.)
Bogart—Middlebrook, C. O. (L.)
Canton—Coker, N. J. (C.)
Cassville—Cross, W. F. (C.)
Chattahoochee—Green, J. E. G. (L.)
Cobtown—Bowen, H. (L.)
Columbus—Baker, E. L. (L.)
Brooks, R. L. (L.)
Daisy—Elarbee, G. W. (L.)
Danielsville—Payne, D. (L.)
Dawson—Kenyon, O. T. (C.)
Eatonton—Griffith, E. F. (L.)
Ensley—Smith, G. H. (L.)
Gordon—Brokins, C. B. (L.)
Hoboken—Dorminy, A. C. (L.)
Jersey—Gerdine, J. (L.)
Martin—Crawford, J. H. (C.)
Oakhurst—Phillips, W. P. (L.)
Rex—Longino, D. R. (L.)
Rome—Chandler, J. L. (L.)
Springfield—Griffin, E. W. (L.)
Tifton—Todd, R. W. (L.)
Tunnel Hill—Carr, J. H. (L.)
Woodbury—Allen, W. P. (L.)

IDAHO

Boise—Shurtz, R. E. (C.)
Burley—Fremsiad, J. (C.)
Patterson, J. C. (L.)
Elk River—Dimon, J. (L.)
Grangeville—Slusser, C. W. (C.)
Hausen—Paxton, C. C. (L.)
Kimberly—Davis, J. N. (L.)
Meuan—Melton, J. E. (C.)
Pocatello—Ray, F. M. (L.)
Rexburg—Parkinson, G. T. (L.)
Weiser—Dudley, S. B. (C.)

ILLINOIS

Aledo—Kleinsmid, J. A. (C.)
Auburn—Hart, S. P. (C.)
White, J. V. (C.)
Baylis—Bowman, W. F. (L.)
Beardstown—Garm, R. H. (M.)
Bloomington — Greenleaf, P. E. (L.)
Blue Island—Davies, C. G. (C.)
Bradford—Mitchell, W. C. (C.)
Brussels—Baecht, F. C. (L.)
Cameron—Zimmerman, H. S. (C.)
Carterville—Aird, A. J. (L.)
Carthage—Gourley, G. E. (C.)
Chicago—Alexander, C. B. (L.)
Allport, H. W. (C.)
Badzmierowski, M. J. (L.)
Benner, C. R. (L.)
Borchert, L. H. (L.)
Bowes, L. (C.)
Butterfield, F. R. (L.)
Clark, P. S. (L.)
Cohler, L. (L.)
Cooley, C. C. (L.)
Davis, B. F. (L.)
Dodson, J. M. (M.)
Doyle, T. F. (L.)
Duff, R. R. (C.)
Dunn, W. C. (C.)
Epstein, A. (L.)
Flinn, E. H. (L.)
Fomon, S. (C.)
Fortelka, F. L. (L.)
Furno, R. H. (L.)
Gibson, H. K. (C.)
Goldstine, M. T. (C.)
Golembiowski, J. J. (L.)
Grant, E. O. (C.)
Griffin, J. M. (C.)
Guca, G. D. (L.)
Gunn, W. P. (L.)
Hassin, G. B. (C.)
Hess, J. H. (M.)
Klein, S. (C.)
Lanski, J. (C.)
Linowiecki, A. J. (C.)
Little, W. G. (C.)
Merrell, H. B. (C.)
Minker, M. (C.)
Moles, J. (L.)
Mulholland, W. J. (L.)
Naughton, M. T. (C.)
Nicholson, J. M. (C.)
Oklan, D. M. (C.)
Osborne, G. (C.)
Oyen, A. N. (L.)
Paul, D. F. (L.)
Pech, A. J. (L.)
Portis, M. M. (C.)
Poulsen, H. A. (L.)
Reeves, J. H. (C.)
Robertson, I. B. (L.)
Rush, E. L. (L.)
Senn, E. J. (M.)
Solomon, C. H. (C.)
Swan, C. J. (M.)
Tollefsen, A. D. (L.)
Vitullo, M. (L.)
Voigt, R. A. (L.)
Whitaker, W. B. (C.)
Wilcox, E. E. (L.)
Winterberger, E. F. (L.)
Wrightoff, J. (M.)
Clinton—Shell, A. E. (L.)
Cowden—Montgomery, E. M. (L.)
Crystal Lake—Hull, H. D. (C.)
Danville—Cook, C. M. (L.)
Wheatley, R. (C.)
Winslow, E. L. (C.)
Durand—Roberts, C. A. (C.)
East Moline—Ellingsworth, J. H. (C.)
Love, H. J. (C.)
Easton—Grant, O. P. (C.)
East St. Louis—Hill, C. E. (C.)
Voris, H. M. (C.)
Elmhurst—Langhorst, H. F. (C.)
Fairbury—Langstaff, J. H. (C.)
Fairmount — Williamson, C. S. (L.)
Flora—Park, E. C. (L.)
Freeport—Best, E. H. (C.)
Galena—Fleege, F. H. (C.)
Galesburg—Hall, F. G. (C.)
Granite City—MacNamara, H. P. (L.)
Griggsville—Loveless, H. C. (L.)
Harvard—Eaton, H. D. (L.)
Herrin—Gardiner, W. R. (L.)
Highland—Kaeser, A. F. (C.)
Iuka—Finn, W. L. (C.)
Jacksonville—King, A. M. (C.)
Joliet—Watson, R. L. (L.)
Kankakee—Badger, P. R. (L.)
La Salle—Geiger, J. W. (L.)
Lexington — Williamson, W. T. (C.)
Lincoln—Hagans, F. M. (L.)
Madison—Church, O. C. (C.)
Mattoon—Carter, W. J. (C.)
McClure—Duncan, C. E. (L.)
Medora—Walton, J. E. (C.)
Minonk—Millard, H. A. (C.)
Moline—Beck, H. E. (C.)
Oakley, R. W. (C.)
Ringnell, F. O. (C.)
Murphysboro—Evans, W. H. (L.)
Riseling, C. E. (L.)
New Berlin—Fulton, L. W. (L.)
Newman—Rutherford, C. W. (L.)
Oakford—Russell, J. C. (L.)
Pawnee—Yeck, C. W. (C.)
Peoria—Paine, J. C. (C.)
Plano—Frederickson, G. (C.)
Pelco—Powell, C. W. (C.)
Quincy—Reticker, J. K. (C.)
Rockford—Fringer, W. R. (C.)
Roodhouse—Bates, C. R. (L.)
Edwards, O. L. (L.)
Springfield—De Freitas, J. A. (L.)
Hagler, A. L. (L.)
Spring Grove—Furlong, J. C. (C.)
Spring Valley—Ream, W. J. (L.)
St. Joseph—Dalton, A. J. (L.)
Streator—Lester, H. S. (C.)
Stronghurst—Marshall, H. L. (C.)
Sugar Grove—McNair, F. M. (L.)
Toulon—Packer, E. B. (C.)
Urbana—Miller, H. W. (C.)
Utica—Conger, J. H. (L.)
Watseka—Foster, T. R. (C.)
Waukegan—Gourley, F. L. (C.)
West McHenry—Froehlich, A. I. (L.)

INDIANA

Alexandria—Keller, F. G. (L.)
Anderson—Fattic, J. B. (M.)
McWilliams, O. E. (C.)
Angola—Humphreys, F. B. (M.)
Azalia—De Long, O. A. (L.)
Battle Ground—Biddle, F. M. (L.)
Bicknell—Dees, H. E. (L.)
Bloomingdale—Green, F. G. (L.)
Bloomington—Moser, J. E. (L.)
Brazil—Rawley, J. A. (C.)
Carlisle—Pirtle, C. W. (L.)
Center Point—Finch, G. R. (L.)
Cicero—Havens, F. D. (L.)
Columbus—Hays, G. R. (L.)
Tilton, R. M. (C.)
Flora—Peters, T. D. (L.)
Fort Wayne—Dupre, B. G. (L.)
Glock, H. E. (L.)
Rosenthal, M. I. (C.)
Geneva—Price, C. R. (L.)
Goshen—Page, A. B. (C.)
Greencastle—Gillespie, J. F. (L.)
Hanover—Henning, C. (L.)
Huntington—Krebs, M. H. (M.)
Hymera—Asbury, C. W. (C.)
Indianapolis—Boyer, J. M. (C.)
Chappell, R. S. (C.)
Eastman, J. R. (M.)
Eberwein, J. H. (L.)
Garrettson, J. A. (L.)
Kelly, W. F. (C.)
Kennedy, B. (M.)
Larkin, B. J. (L.)
Marxer, C. W. (C.)
Petersdorf, G. A. (C.)
Reid, F. P. (C.)
Walters, A. L. (L.)
Willan, H. R. (L.)
Jasper—Sturm, E. A. (C.)
Kouts—Dittmer, S. E. (L.)
LaFayette—Shafer, J. W. (C.)
Lakeville—Wiseman, C. S. (L.)
Lintoin—Craft, W. F. (L.)
Logansport—Flavien, E. B. (L.)
Gilbert, J. L. (C.)
Johnson, H. C. (M.)
McCulley, C. H. (C.)
Middletown—Arford, R. D. (L.)
Mitchell—Gibbons, G. I. (L.)
Monroe—Parrish, M. C. (L.)
Morristown—Patten, V. C. (C.)
New Richmond—Wray, C. M. (L.)
North Judson—Englerth, P. O. (C.)
Petersburg—Clark, S. R. (C.)
Riley—DePuy, C. M. (C.)
Seymour—Gillespie, C. E. (L.)
Shipshowana—Hunn, M. G. (C.)
South Bend—Crowe, H. M. (L.)
Owen, W. L. (C.)
Tennyson—Werry, L. E. (L.)
Terre Haute—Pavy, C. A. (L.)
Valparaiso—Blount, R. D. (C.)
Vincennes—Beckes, N. E. (C.)
Boyd, C. L. (C.)
Edwards, E. T. (L.)
Wakarua—Wagner, S. C. (L.)
Washington — Donaldson, A. I. (C.)
Youngstown—Drake, J. F. (L.)

IOWA

Albia—Griffin, J. M. (L.)
Bayard—Cooper, W. A. (L.)
Belle Plaine—Yavorsky, G. W. (C.)
Boone—Deering, A. B. (C.)
Healy, M. A. (C.)
Cedar Falls—Mead, F. N. (C.)
Cedar Rapids—Alt, R. C. (C.)
Charlton—Baskin, C. L. (L.)
Charter Oak—Hill, G. R. (C.)
Clarinda—Phillips, W. C. (C.)
Conrad—Gould, G. R. (L.)
Davenport—Allen, L. V. (C.)
Middleton, G. M. (C.)
Peck, R. E. (C.)
Denmark—Patchin, H. J. (L.)
Des Moines—Carpenter, W. S. (C.)
West, H. D. (L.)
Dubuque—Harris, R. R. (L.)
Dysart—Redmond, J. P. (C.)
Forest City—Lucore, T. (C.)
Glenwood—Moon, R. (C.)
Grinnell—Harris, E. E. (C.)
Harvey—Pascor, I. J. (L.)
Iowa City—Kimmel, E. E. (L.)
McMahon, T. A. (C.)
Iowa Falls—Wray, C. M. (L.)
Keokuk—Armentrout, C. R. (C.)
Hall, G. J. (L.)
Laurel—Patterson, C. W. (L.)
Mason City—Burke, T. A. (L.)
Merrill—Naffziger, A. (C.)
Mount Ayr—Lesan, C. T. (C.)
Mount Pleasant—Pitcher, J. J. (L.)
Mount Vernon—Ebersole, F. F. (C.)
Ogden—Ganoe, J. O. (C.)
Shenandoah—Brush, M. O. (L.)
Sioux Center—De Pree, S. B. (C.)
Sioux City—Carney, S. D. (C.)
Victor—Detchon, H. S. (L.)
Washington—Hull, H. C. (C.)
Waterloo—Brinkman, J. E. (C.)
Waverly—Sparks, F. R. (C.)

KANSAS

Altamont—Petty, C. N. (L.)
Anthony—Cronk, C. F. (C.)
Arkansas City—Wentworth, J. L.
Augusta—McKinney, R. B. (L.)
Baxter Springs—McCormick, G. C. (C.)
Blue Rapids—McFarland, C. R. (L.)
Dodge City—Broderick, E. J. (C.)
Emporia—White, F. W. (L.)
Erie—Harlin, R. I. (C.)
Goessel—Richert, H. (L.)
Green—Smith, W. R. (L.)
Haviland—Wesley, P. F. (L.)
Hays—Meade, F. K. (C.)
Holton—Shaw, J. C. (C.)
Howard—DePew, F. L. (L.)
Hutchinson—Cage, R. R. (C.)
Independence—DeMott, C. W. (C.)
Kansas City—Walker, W. H. (C.)
Kinsley—Donnell, J. B. (L.)
Little River—Ault, W. W. (L.)
Lyons—McBride, J. S. (C.)
Medicine Lodge—Jordan, B. H. (C.)
Narka—West, J. W. (L.)
Neosho Falls—McCool, S. A. (C.)
Newton—Grove, J. L. (C.)
Ottawa—Michener, W. E. (L.)
Parsons—Landes, G. A. (C.)
Preston—Melton, D. W. (L.)
Quenemo—Poston, W. O. (L.)
Quintor—Rinehart, J. H. (C.)
Salina—Mowery, W. E. (L.)
Stafford—Butler, W. L. (L.)
Summerfield—Dodds, D. D. (L.)
Topeka—Alexander, H. A. (L.)
Goodman, A. R. (L.)
White, M. L. (L.)
Vinland—Yates, C. E. (L.)
Wakefield—Myers, E. A. (L.)
Wellington—Caldwell, J. C. (C.)
Hatcher, A. R. (L.)
Wichita—Crittenden, A. L. (L.)
Gardner, A. E. (L.)
Winfield—James, R. W. (C.)

KENTUCKY

Ashland—Dorroh, H. C. (C.)
Stephenson, L. W. (L. C.)
Bowling Green—Duncan, J. F. (L.)
Burkesville—Talbot, J. G. (C.)

Calvert City—Little, W. T. (L.)
Campbellsville—Gowdy, E. L. (L.)
Reesor, O. R. (C.)
Carrollton—Ryan, J. M. (L.)
Cave City—Turner, E. D. (L.)
Covington—O'Maley, J. M. (C.)
Eminence—Dowden, A. P. (L.)
Fulton—Alexander, J. M. (L.)
Harrodsburg—Robards, J. B. (C.)
Hartford—Riley, A. B. (C.)
Henshaw—Snow, J. C. (L.)
Hopkinsville—Dade, R. (L.)
Gaither, J. G. (C.)
Lawrenceburg—Overall, A. C. (C.)
Lexington—Gordon, L. R. (L.)
Lewis, J. C. (C.)
Louisville—Clowney, S. C. (L.)
Crandell, L. A. (L.)
DeWitt, C. C. (C.)
English, C. C. (C.)
Fugate, I. T. (C.)
Grasser, E. T. (L.)
Jenkins, W. A. (M.)
Neff, C. O. (C.)
Redmon, E. C. (L.)
Rosenfield, W. H. (L.)
Stull, S. L. (L.)
Wolfe, C. T. (C.)
Moreland—Piper, M. L. (C.)
Newport—Anderson, W. W. (M.)
Paducah—Hoyer, F. A. (C.)
Stewart, P. H. (M.)
Washburn, B. A. (L.)
Parvin—Combs, V. R. (L.)
Springfield—Brandon, E. C. (C.)
Thomas—Bevins, H. C. (C.)
Union City—Jeffries, J. H. (L.)
Williamstown—Menefee, A. V. (C.)
Wilmore—Gillispie, V. C. (L.)

LOUISIANA

Alexandria — Gremillion, C. J. (L.)
Baton Rouge—Tucker, J. A. (C.)
Belcher—Bugg, A. B. (C.)
Gonzalis—LeSueur, G. B. (C.)
Marksville—Kiblinger, E. (C.)
New Orleans—Beattle, C. A. (L.)
Geisman, S. (L.)
Harney, J. B. (L.)
Hauer, G. J. (L.)
Levin, A. L. (C.)
Whitmire, A. L. (C.)
Pleasant Hill—Thaxton, R. P. (L.)
Ruston—White, S. L. (C.)
Shreveport—Garrett, B. C. (L.)
Winnfield—Kelly, D. W. (C.)

MAINE

Atlantic—Gage, I. B. (L.)
Biddeford—McNally, D. A. (C.)
Bridgeton—Mabry, I. E. (C.)
Lewiston—Dumont, L. J. (L.)
Madison—Pepper, J. L. (L.)
Portland—Caplan, E. (C.)
Howes, H. M. (L.)
McDonald, C. D. (C.)
Robinson, C. M. (C.)
Rockland—Carr, E. B. (L.)
Frohock, H. W. (L.)
South Portland—Lombard, L. S. (C.)

MARYLAND

Annapolis—Purvis, J. O. (C.)
Bel Air—Sappington, P. F. (C.)
Baltimore—Atkinson, A. D. (M.)
Councill, W. A. H. (L.)
Lehnert, E. C. (L.)
Martin, J. W. (L.)
Neymann, C. (L.)
Norris, J. E. (L.)
Smith, H. L. (C.)
Stein, A. (L.)
Teeter, E. H. (C.)
Zinn, W. B. (L.)
Damascus—Boyer, G. M. (M.)
Hagerstown—Branin, C. N. (C.)
Rumford—Wheet, F. E. (C.)
Westminster—Coonan, T. J. (C.)

MASSACHUSETTS

Attleboro—McDonald, H. L. (L.)
Ayer—Gross, A. B. (L.)
Belchertown—Eliot, H. W. (C.)
Boston—Birdsell, C. H. (L.)
Blodgett, S. H. (C.)
Devan, T. A. (L.)
Flagg, E. (C.)
George, A. W. (M.)
Goldberg, M. (L.)
Gordon, L. (L.)
Greene, D. C. (L.)
Hartnett, E. D. (L.)
Loring, R. G. (C.)
McClure, C. W. (C.)
McGillicuddy, C. J. (C.)
Mixter, S. J. (M.)
Stone, J. S. (M.)
Brockton—Condrick, J. J. (L.)
Mara, J. L. (L.)
Cambridge—Hutchinson, C. M. (C.)
Chelsea—Maxfield, G. H. (C.)
Chicopee—Gallagher, J. H. (L.)
Clara—Mason, G. D. (L.)
Fall River—Hicks, G. H. (L.)
Fitchburg—Pitcher, H. B. (L.)
Georgetown—Root, R. R. (L.)
Greenfield—Millett, F. A. (L.)
Haverhill—Cogswell, W. (M.)
George, A. P. (C.)
Kaplovitch, H. (L.)
Haydensville—Perry, C. E. (C.)
Holliston—Heffernan, D. W. (L.)
Holyoke—St. Georges, W. M. (L.)
Hyde Park—Dodge, R. O. (L.)
Leominster—Hoyt, D. G. (C.)
Lowell—Blanchard, P. D. (L.)
Rodger, J. Y. (L.)
Lynn—Hearn, W. L. (C.)
Marlboro—Dalton, S. J. (L.)
Merill, C. H. (C.)
Newton—Guiler, R. W. (L.)
Marston, W. W. (L.)
Withee, F. E. (C.)
Northampton—Collins, J. D. (M.)
North Attleboro—Hale, W. L. (C.)
North Billerica—Forham, N. K. (L.)
Norwood—Gould, C. S. (L.)
Peabody—Foss, R. E. (L.)
Varney, E. M. (L.)
Reading—Dow, G. F. (C.)
Richmond, E. D. (L.)
Salem—Finnegan, P. J. (L.)
Springfield—Everett, F. (C.)
Gaylord, F. L. (L.)
Graham, J. P. (C.)
Hosley, W. A. (C.)
Leonard, W. J. (C.)
McKechnie, F. J. (C.)
Ritter, H. (C.)
State Farm—Seymour, W. Y. (C.)
Walpole—Connell, T. M. (L.)
Wellesley—Wiswall, E. H. (L.)
West Chelmsford—Toye, J. E. (C.)
West Medford—Coffin, W. K. (L.)
West Roxbury—Jillson, F. C. (C.)
Weymouth—Libby, J. H. (C.)
Whitman—Hanley, F. J. (C.)
Worcester—Lindsay, J. C. (C.)
Nightingale, J. (C.)

MICHIGAN

Adrian—Morden, E. T. (C.)
Ann Arbor—Pearson, A. H. (L.)
Battle Creek—Elliott, J. A. (C.)
Parker, J. H. (L.)
Bedford—Rees, K. B. (L.)
Calumet—Joy, H. M. (C.)
Deckerville—Merriman, H. H. (C.)
Detroit—Clark, L. (L.)
Feller, R. L. (C.)
Garner, H. B. (C.)
Gellert, I. S. (L.)
Hensel, R. D. (L.)
McGraw, T. A., Jr. (L. C.)
Merrill, W. O. (L.)
Musser, F. C. (L.)
Palmer, H. G. (C.)
Radzinski, A. J. (L.)
Randall, O. M. (C.)
Fenton—McGarry, B. G. (C.)
Flint—Paull, A. T. (L.)
Grand Rapids—Eaton, R. R. (L.)
Greenville—Weaver, H. B. (L.)
Jackson—Winter, E. E. (C.)
Lake Linden—Collins, W. T. (L.)
Lyon—Grant, W. A. (L.)
Manistee—Ramsdell, L. S. (C.)
Mohawk—Tucker, A. R. (C.)
Monroe—Acker, W. F. (C.)
Mount Pleasant—Pullen, C. D. (C.)
Muskegon—Vanderlinde, L. A. (L.)
New Lothrop—White, H. T. (C.)
Niles—Carr, H. S. (L.)
Plymouth—Patterson, A. E. (C.)
Traverse City—Johnson, G. M. (C.)
Whitehall—Smith, C. F. (C.)
Wolverine—McKillop, A. J. (L.)

MINNESOTA

Duluth—Eaton, W. H. (C.)
Fairfax—Crandall, A. M. (L.)
Hallock—Shaleen, A. W. (C.)
Hibbing—Raadquist, C. S. (L.)
Hutchinson—Douglas, H. E. (L.)
Jackson—Arzt, H. L. (C.)
Kenyon—Gates, J. A. (C.)
Lake City—Cochrane, W. J. (C.)
Lamberton—Gleysteen, D. V. (C.)
Minneapolis—Doyle, J. W. (C.)
Jones, H. S. (C.)
Perry, R. S. (C.)
Rodgers, C. L. (L.)
Minneapolis—Sellers, H. H. (C.)
Winsell, F. F. (C.)
Monticello—Ellison, F. E. (C.)
Moorhead—Briggs, F. W. (C.)
Mountain Lake—Piper, W. A. (L.)
Northfield—Lee, W. P. (C.)
Onamia—Roadman, I. M. (C.)
Park Rapids—Higgs, W. W. (C.)
Pipestone—Powers, F. L. (L.)
Rochester—Crenshaw, J. L. (C.)
Horgan, E. J. (C.)
Sandstone—Bohling, B. S. (L.)
Slayton—Benoit, F. T. (L.)
Spring Valley—Kendick, W. N. (C.)
St. Paul—Boeckmann, E. (C.)
Starbuck—Christenson, C. R. (C.)
White Earth—Rodwell, T. F. (L.)

MISSISSIPPI

Banner—Watson, W. T. (L.)
Bude—Gray, R. E. (L.)
Carson—Nichols, V. N. (L.)
Coffeeville—Griffin, H. E. (L.)
Crowder—Grice, E. A. (L.)
Drew—Booth, B. H. (C.)
Enterprise—Irby, J. T. (C.)
Gloster—Lea, V. A. (C.)
Hazelhurst—White, J. C., Jr. (L.)
Hinchcliff—Franks, V. D. (L.)
Holly Springs—Greene, C. C. (L.)
Lamont—Miller, H. R. (C.)
Laurel—Kittrell, J. R. (C.)
Rienzi—Honnoll, R. E. (L.)
Sliver Creek—Wilson, J. W. (C.)
Waynesboro—Gray, W. P. (L.)

MISSOURI

Aurora—Robertson, R. C. (L.)
Bolckow—Wood, W. L. (L.)
Bunceton—Kelly, R. Q. (L.)
Cape Girardeau—Porterfield, J. D., Jr. (C.)
Centralia—Mayes, O. B. (C.)
Clinton—McNees, A. J. (C.)
Columbia—Dysart, W. P. (C.)
Excelsior Springs—Parker, E. L. (L.)
Farmington—Weber, F. S. (L.)
Fayette—Richards, T. C. (C.)
Fulton—Hall, R. G. (C.)
Gordonville—Ford, W. W. (L.)
Greensburg—Gibbs, C. A. (L.)
Hamilton—Daley L. M. (L.)
Hannibal—Detwiler A. J. (C.)
Farrell J. J. (C.)
Paxon, C. E. (C.)
Hermann—Haffner, E. (C.)
Hughesville—Cartwright, C. P. (L.)
Huntsville—Bragg, G. G. (L.)
Mabee, J. R. (C.)
Joplin—Kaemmerling, G. G. (L.)
Kansas City—Anderson, W. C. (L.)
Cooper, C. L. (C.)
Greene, L. B. (C.)
Hamilton, E. P. (C.)
Hatch, F. J. (C.)
Hayden, G. (C.)
Martin, C. F. (L.)
Mathias, E. L. (C.)
Moreland, G. H. (C.)
Myers, J. L. (C.)
Nixon, W. W. (C.)
Ragan, S. H. (L.)
Ruble, E. L. (L.)
Snider, J. S. (C.)
Laredo—Mairs, E. J. (L.)
Lowry City—Peelor, E. C. (C.)
Marceline—Patrick, P. L. (L.)
Marshall—Manning, D. F. (C.)
McLennan, T. A. (C.)
Mexico—Harrison, J. F. (C.)
Moberly—Hodson, A. W. (C.)
McCormick, F. L. (C.)
Monett—Russell, J. M. (C.)
Mound City—Quigley, B. T. (C.)
Mount Vernon—Shaw, F. W. (M.)
Neosha—Lamson, R. G. (C.)
Novelty—Noe, L. (L.)
Otterville—Fogle, R. L. (C.)
Palmyra—Roselle, T. A. (C.)
Paris—Ragsdale, G. M. (L.)
Pond—Dean, J. W. (L.)
Purdy—Kelly, B. B. (C.)
Salem—Rudd, W. E. (C.)
Sedalia—Campbell, A. J. (L.)
Ferguson, W. J. (C.)
Smithville—Calvert, H. A. (L.)
Spickard—Cullers, C. H., Jr. (L.)
St. Joseph—Dandurant, L. J. (C.)
Doyle, J. M. (C.)
Hansen, W. J. (L.)
Smith, A. S. (C.)
Wright, G. D. (C.)
St. Louis—Baepler, H. L. (L.)
DePew, H. B. (L.)
Dudley, C. E. (C.)
Eber, C. T. (L.)
St. Louis—Gorin, M. G. (C.)
Griot, G. A. (C.)
Humphrey, J. H. (C.)
Jeude, J. J. (C.)
Kring, R. (C.)
Link, E. X. (C.)
Loeb, H. W. (M.)
Luedde, W. H. (M.)
Marten, W. F. (L.)
Meredith, J. J. (C.)
Miller, H. B. (C.)
Moskop, P. G. (L.)
Phelan, R. A. (L.)
Pitzman, M. (L.)
Poe, J. D. (L.)
Porterfield, E. P. (C.)
Ravold, A. N. (M.)
Trawick, G. C. (C.)
Viehe, R. F. (L.)
Vierling, O. (L.)
Werner, A. A. (L.)
Wiesner, B. J. (L.)
Wright, D. P. (L.)
Sturgeon—McComas, A. R. (C.)
Sweet Springs—Ringen, A. H. (L.)
Urich—McDonald, J. G. (C.)

MONTANA

Big Timber—Claiborn, D. (L.)
Butte—Bernheim, L. (C.)
Williams, F. (L.)
Dillon—MacMillan, H. A. (L.)
Grant Falls—Durnin, R. B. (L.)
Great Falls—Frizzell, R. R. (L.)
Havre—Ward, A. L. (M.)
Lewistown—Foley, J. T. (C.)
Wilder, C. W. (L.)
Missoula—Flynn, J. J. (L.)
Ronan—Fuhrer, E. (L.)
Shelby—Ridle, M. D. (C.)
Stevensville—Rennick, P. S. (L.)
White Sulphur Springs—Githus, A. T. (C.)

NEBRASKA

Bancroft—Francis, H. W. (C.)
Coleridge—Braucht, F. E. (C.)
Fairbury—Culbertson, H. H. (C.)
Fremont—Buchanan, A. E. (C.)
Genoa—Williams, C. D. (C.)
Hartington—Stark, L. (C.)
Humphrey—LeMar, F. A. (C.)
Lincoln—Bogen, L. I. (C.)
Madison—Gadbois, A. E. (C.)
Milford—Muir, J. C. (L.)
North Platte—Redfield, J. B. (L.)
Omaha—Eggers, H. E. (M.)
Follmann, J. C. (L.)
Pender—Buis, F. (C.)
Red Cloud—Mitchell, R. S. (C.)
Riverton—Nail, F. E. (C.)
Seward—Ragan, S. E. (C.)
Tecumseh—Curtis, J. M. (L.)
Wakefield—Coe, C. B. (L.)
Wood River—Hall, L. L. (C.)
York—Plumb, J. N. (C.)

NEVADA

Lovelocks—Kitchen, J. (L.)
Smith, E. K. (C.)
McDermitt—Rees, J. T. (L.)
Tonopah—Cunningham, J. R. (C.)

NEW HAMPSHIRE

Bristol—Robertson, F. M. (C.)
Franklin—Logace, A. (L.)
Manchester—Guillet, N. E. (M.)

NEW JERSEY

Atlantic City—Berner, D. (L.)
Chesler, M. J. (L.)
Gurin, A. A. (L.)
Park, F. S. (L.)
Caldwell—Hedbeck, H. B. (C.)
Clifton—Vreeland, R. J. (L.)
Collingwood—Rogers, E. B. (C.)
East Orange—Mitchell, F. B. (C.)
Thompson, A. F. (M.)
Elizabeth—Green, J. (M.)
Gloucester—Fox, R. T. (L.)
Hoboken—Arlitz, W. J. (C.)
Landing—Wright, G. R. (L.)
Long Branch—Welch, J. T. (C.)
Montclair—Harris, H. (L.)
Hochberg, N. M. (L.)
Morristown—Vincent, G. W. V. (C.)
Netcong—Bird, F. L. (L.)
Newark—Asher, M. (C.)
Decker, C. L. (C.)
Derivaux, J. A. (L.)
Hailperin, C. J. (L.)
Mimingham, W. D. (C.)
Reinfeld, A. G. (L.)
Rubinow, S. M. (C.)
Passaic—Armstrong, R. R. (C.)
Paterson—Cohen, M. (L.)
Duncan, O. B. (C.)
Marsh, E. J. (C.)
Oram, J. H. (C.)

Plainfield—Cregar, P. B. (C.)
Probasco, N. H. (C.)
Riverton—Witte, F. C. (L.)
Summit—Clark, C. P. (L.)
Sweedesboro—DeGrofft, V. E. (C.)
Trenton—Dickinson, E. A. A. (L.)
Rogers, L. H. (L.)
Union Hill—Brady, C. S. (C.)
Vineland—Clippinger, R. D. (L.)
Winslow, J. H. (L.))
West Hoboken—D'Acierno, P. A. (L.)
Woodbridge — Hoagland, B. W. (C.)

NEW MEXICO

Alamogordo—Scott, W. M. (C.)
Albuquerque—Angle, G. K. (C.)
Gallup—Fratt, A. C. (C.)
Park View—Sewell, H. D. (C.)
Raton—Fulton, C. W. (L.)
Silver City—Hooper, E. W. (C.)

NEW YORK

Adams—Hollis, S. C. (C.)
Albany—Bellin, M. (L.)
Maguire, F. B. (L.)
Alexandria Bay—Hartman, L. J. (C.)
Allegany—Gould, J. (L.)
Auburn—Johnson, R. F. (L.)
Neville, W. H. (C.)
Au Sable Forks—Culver, G. J. (C.)
Beacon—Dugan, C. B. (C.)
Brooklyn—Anderson, A. L. (C.)
Carlin, N. S. (L.)
Cavanagh, P. F. (C.)
Cohan, L. L. (L.)
Crawford, F. D. (L.)
Dawson, E. A. (L.)
Doyle, G. J. (C.)
Drew, H. C. (C.)
Foehrenbach, H. P. (L.)
Gerber, R. A. (L.)
Gillespie, F. B. (L.)
Gilmartin, A. E. (L.)
Golly, H. C. (L.)
Jacobs, L. (L.)
Kopf, J. B. (C.)
Mulot, O. L. (C.)
Reichers, G. H. (C.)
Resnicoff, M. (L.)
Roberts, D. D. (M.)
Ryback, J. (L.)
Schneible, I. M. (L.)
Vinski, F. V. (L.)
Zwerling, S. (L.)
Buffalo—Benedict, A. L. (C.)
Boyle, F. M. (C.)
Clarke, E. A. D. (L.)
De Dominicis, R. N. (L.)
Fisher, R. C. (L.)
Frost, E. L. (L.)
Gaylord, H. R. (M.)
Gianfranceschi, J. S. (L.)
Hendee, L. (C.)
Hoffman, F. J. (C.)
Mendlein, F. A. (C.)
O'Callahan, W. K. (C.)
Wagner, A. W. (L.)
Chadwicks—Griffith, E. M. (C.)
Chateaugay—Sprague, L. P. (C.)
Churchville—Vail, E. H. (C.)
Cohoes—Smith, A. E. (L.)
Corning—Hutton, E. H. (C.)
Rodgers, A. H. (C.)
Douglaston—Billings, J. S. (M.)
Elmira—Carey, C. L. (L.)
Dann, R. H. V. (C.)
Fairport—Price, G. S. (C.)
Fisher's Island—Mittlestaedt, C. B. J. (C.)
Fort Slocum—Gittleson, M. (L.)
Franklinville—Randall, C. L. (C.)
Freeport—Lindsay, G. (C.)
Fulton—Feesenden, C. L. (L.)
Ithaca—Merriam, H. E. (C.)
Jefferson—Topping, C. H. (L.)
Lisbon—Cleland, L. F. (C.)
Little Falls—Vickers, H. W. (C.)
Montour Falls—Baker, R. O. (L.)
Naples—Manly, F. W. (C.)
New York—Brandt, M. L. (L.)
Chickering, H. T. (C.)
Cox, H. M. (C.)
Cromley, J. B. (C.)
Deal, F. A. (C.)
De Sanctus, A. G. (L.)
Edelsack, B. (L.)
Edlin, J. S. (L.)
Epstein, A. A. (C.)
Farr, C. E. (C.)
Fine, A. (L.)
Fuller, D. M. (L.)
Geraci, L. A. (L.)
Gillespie, D. P. (L.)
Goldberg, H. H. (L.)
Gordin, A. E. (L.)
Gottlieb, C. (L.)

New York—Guile, H. V. (C.)
Haden, J. B. (L.)
Hays, H. M. (M.)
Holladay, E. W. (C.)
Jacobs, H. S. (L.)
Keyes, S. J. (C.)
King, E. A. (C.)
Korn, P. (L.)
Ladd, W. S. (L.)
Loughran, F. W. (M.)
Maddo, A. S. (C.)
McBurney, M. (C.)
Milbank, S. (L.)
Mills, W. S. (C.)
Murphy, J. D. (C.)
Ratliff, H. M. (C.)
Rudderow, E. D. (C.)
Schaie, M. (L.)
Schultze, E. C. (C.))
Walsh, J. J. S. (C.)
Weil, S. (L.)
Ogdensburg—Madill, G. C. (C.)
Stearns, M. J. (C.)
Olcott—Pickett, F. R. (C.)
Oneida—Pfaff, O. (L.)
Oswego—Calisch, A. C. (C.)
Penn Yan—Matthews, H. W. (C.)
Pleasantville — Robinson, H. E. (L.)
Port Chester—Ornstein, G. G. (C.)
Poughkeepsie—Wilson, J. S. (C.)
Rochester — Beirmeister, J. F. (L.)
Bowen, W. E. (C.)
Clark, G. H. (L.)
Giannranceschi, G. J. (L.)
Johnson, A. M. (C.)
Kieffer, T. J. (C.)
Lerner, M. L. (C.)
Marion, G. (C.)
Reynolds, E. R. (L.)
Wendel, E. J. (L.)
Woodbury, W. R. (C.)
Rockwell's Mills—Winsor, E. C. (L.)
Rye—Hogben, G. J. (L.)
Schenectady—Gardinier, C. (L.)
McMullen, C. G. (M.)
Shortsville—Eiseline, D. A. (C.)
Sloatsburg—White, R. L. (L.)
Staten Island—Coonley, F. (C.)
Driscoll, A. S. (C.)
Syracuse—Cooper, R. S. (L.)
Foreman, T. F. (C.)
Stewart, S. (C.)
Tarrytown—Chace, A. E. (C.)
Troy—Decker, I. V. (L.)
Watertown—Jones, E. W. (C.)
Montgomery, H. C. (L.)
West Albany — Wilkins, E. W. (L.)
West Henrietta—Ames, J. A. (C.)
White Plains—Meyer, W. J. (C.)

NORTH CAROLINA

Asheville—Reeves, A. F. (C.)
Beaufort—Maxwell, C. S. (C.)
Canton—Pegram, R. W. S. (L.)
Farmville—Willis, W. M. (L.)
Gastonia—Anderson, J. A. (C.)
Graham—Barrett, J. C. (C.)
Hertford—McMullan, T. S. (C.)
High Point—Burrus, J. T. (L. C.)
Lilesville—Kerr, J. E. (C.)
Louisburg — Yarborough, R. F. (C.)
Raeford—Wilkins, R. B. (L.)
Reidsville—Abernethy, M. B. (C.)
Salisbury—Shafer, I. E. (L.)
Summerfield—Wilson, N. G. (C.)
Tyner—Whichard, M. P. (L.)
Wilmington—Miller, J. F. (C.)

NORTH DAKOTA

Bismarck—Rund, H. O. (L.)
Carrington—Goss, E. L. (L.)
Fargo—Aylen, J. P. (M.)
Mandan—Miller, J. P. (L.)
Minot—McCannel, A. D. (C.)
Parshall—Frogner, G. S. (L.)
Wimbledon—Wanner, W. B. (C.)

OHIO

Akron—Clark, L. D. (L.)
Gillespi, B. H. (L.)
Gregg, R. A. (L.)
Humphrey, J. B. (C.)
Alexandria—Johnston, E. H. (C.)
Amsterdam—Atwell, Z. F. (C.)
Athens—Douthitt, C. M. (L.)
Barberton—Livermore, F. B. (C.)
Bellefontaine—Loffer, O. W. (C.)
Bellevue—Dewey, H. R. (C.)
Bluffton—Hughson, B. E. (C.)
Cambridge—Johnson, C. R. (L.)
Celina—Arthur, L. T. (L.)
Cincinnati—Benjamin, J. E. (C.)
Faller, A. (C.)
Hahn, E. (L.)
Lurie, L. A. (L.)
Manss, C. W. (C.)

Cincinnati—Nieman, S. C. (C.)
Wilson, M. E. (L.)
Clarington—Messerly, C. B. (C.)
Cleveland—Bondy, E. R. (C.)
Bryant, D. J. (L.))
Chandler, K. H. (L.)
Costello, T. A. (L.)
Gallagher, F. J. (L.)
Garvin, E. C. (L.)
Goodman, I. (L.)
Gurley, E. W. (C.)
Hurt, J. A. (C.)
Lee, F. C. (C.)
Manley, R. M. (C.)
Sawicki, B. J. (L.)
Trego, W. E. (L.)
Warren, A. W. (L.)
Columbus—Creed, C. H. (L.)
Duffee, W. E. (L.)
Hoy, C. D. (C.)
Myers, H. E. (L.)
Columbus Grove—Morris, F. (C.)
Wilcox, G. S. (L.)
Creston—Allen, V. I. (L.)
Dayton—Bond, R. R. (L.)
Wonder, J. (L.)
Delphos—Harnagle, G. (L.)
Elyria—Gill, G. (C.)
Nicholas, G. D. (C.)
Forest—Rabberman, W. H. (C.)
Fredericktown—Cole, R. E. (L.)
Gallipolis—Morgan, E. H. (M.)
Jamestown—Dennis, G. K. (L.)
Leipsic—Hickey, W. D. (C.)
Letart Falls—Crary, H. L. (C.)
Lodi—Whitacre, A. (L.)
Madison—Winans, J. V. (C.)
Mansfield—Wilmuth, C. S. (L.)
Marietta—Theis, H. H. (L.)
Marion—Mahla, F. E. (L.)
Weiser, W. C. (L.)
Marysville—Hoopes, C. W. (L.)
Mount Healthy—Smedley, A. L. (C.)
Nevada—Dwire, H. E. (C.)
Newcomestown — Goudy, R. A. (L.)
North Canton—Frick, L. L. (L.)
Ohio City—Reeder, M. E. (L.)
Orville—Irvin, G. H. (C.)
Payne—Miller, J. (C.)
Portsmouth—Rardin, J. S. (M.)
Revenna—Gatchell, W. L. (C.)
Santoy—Warren, J. R. (L.)
Seville—Brintnall, R. A. (C.)
Somerset—Fountain, I. C. (L.)
Springfield—Lisle, H. C. (C.)
Toledo—Frick, J. M. (L.)
Harvey, J. H. (C.)
Louy, C. (C.)
Patterson, F. M. (L.)
Wendt, E. S. (L.)
Wright, J. F. (L.)
Van Wert—Kreider, F. P. (C.)
Walhonding—Curaton, B. F. (C.)
Wellington—Gregg, H. B. (L.)
Willshire—Roller, W. C. (L.)
Wren—Reed, F. E. (L.)
Zanesville—Geyer, H. R. (C.)

OKLAHOMA

Allen—Mills, J. T. (L.)
Altus—Abernethy, B. (L.)
Apache—Myers, P. B. (L.)
Bokoshe—King, J. T. (C.)
Bull—Price, E. S. (L.)
Chattanooga—Kerr, G. E. (C.)
Cherokee—Rhodes, T. A. (C.)
Clinton—Rogers, M. (C.)
Comanchee—Cowan, J. P. (C.)
Coyle—Dorough, J. L. (L.)
Elk City—Tisdal, V. C. (L.)
Geary—Millman, E. F. (L.)
Gotebo—Watkins, B. H. (L.)
Grainola—Miller, E. L. (L.)
Guthrie—Lovelady, B. (C.)
Ritzhaupt, L. H. (L.)
Henryetta—Cowell, H. D. (L.)
Holdenville—Eckles, G. R. (C.)
Hillsdale—McMahan, A. M. (L.)
Idabel—Moreland, W. A. (L.)
Kiefer—Artz, T. L. (L.)
Kiel—Cavett, R. (L.)
Kinta—Waltrip, J. R. (L.)
Marlow—Montgomery, R. L. (L.)
Maud—Culbertson, R. R. (L.)
McAlester—Williams, C. O. (L.)
McLoud—Williams, A. J. (L.)
Muskogee—Walton, F. L. (C.)
Norman—Thacker, R. E. (L.)
Nowata—Lawson, D. M. (C.)
Oklahoma City—Day, C. R. (C.)
Dreskell, J. (L.)
Mahr, J. C. (C.)
Pine, J. S. (C.)
Pawhuska—Aaron, W. H. (L.)
Spiro—Hartshorne, G. E. (L.)
Tecumseh—Goodrich, E. E. (L.)
Tipton—Mabry, E. W. (L.)
Tulsa—Felt, R. A. (L.)
Geissler, P. C. (L.)
Watonga—Doty, H. W. (L.)

OREGON

Eugene—Gullion, W. T. (L.)
Gold Hill—Chisolm, W. P. (L.)
Dixon, O. C. (L.)
Hood River — Abraham, V. R. (M.)
Pendleton—Tamiesie, A. E. (C.)
Portland—Dammasch, F. H. (M.)
Fisher, R. S. (C.)
Holt, R. E. L. (C.)
Pargon, J. A. (C.)
Parker, H. C. (C.)
Sommer, E. A. (C.)
Wood, J. F. (C.)
Prinville—Rosenberg, J. H. (C.)
Rainier—Ditto, J. F. (L.)
Roseburg—Vincil, F. H. (C.)

PENNSYLVANIA

Allentown—Matz, J. D. (C.)
Ambler—Fine, W. E. (C.)
Bellevue—Farquhar, G. W. (C.)
Braddock—Egan, J. P. (L.)
Butler—McCall, W. A. (C.)
Carnegie—Updegraff, H. C. (C.)
Chester—Orr, A. V. B. (C.)
Clearfield—Piper, W. S. (C.)
Rowles, L. C. (C.)
Connellsville—Bailey, W. J. (C.)
Crafton—Stoneman, M. U. (C.)
Dallastown—Frey, C. W. (L.)
Danville—Williams, E. T. (L.)
Dixmont—Heller, P. K. (L.)
Dormont—Golden, J. F. (L.)
Dunbar—Lindsay, J. B. (L.)
Elysburg—Allison, C. E. (L.)
Fort Washington—Craig, A. J. (L.)
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Greencastle—Gilland, T. H. (L.)
Greensburg—Pierce, C. F. (C.)
Grove City—McConnell, E. M. (L.)
Halifax—Smith, F. C. (C.)
Hazelton—Fagan, P. E. (C.)
Johnstown—Basil, A. A. (L.)
Hay, G. (L.)
Porch, L. L. (L.)
Lancaster—Kauffman, A. C. (C.)
Myers, D. M. (C.)
Lansford—Kistler, R. H. (L.)
Lawrenceville—Smith, L. C. (C.)
Leaman Place—Leaman, W. J. (L.)
Lock Haven—Lubrecht, J. L. (C.)
McKeesport — Hinchman, R. S. (L.)
Meadville—Ferar, C. K. (C.)
Monessen—Israel, J. (L.)
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New Brighton—Mead, H. B. (C.)
New Castle — Grossman, L. W. (L.)
Urey, F. F. (C.)
New Kensington—Parks, D. H. (L.)
Oil City—Dickey, E. L. (M.)
Philadelphia — Albrecht, H. E. (M.)
Bernstein, A. (L.)
Brown, B. (C.)
Brown, H. J., Jr. (M.)
Cloud, C. N. (C.)
Cooke, E. S. (C.)
Coover, D. B. (L.)
Farrar, J. D. (C.)
Ferguson, G. M. (C.)
Fleitas, J. (L.)
Forman, H. J., Jr. (L.)
Fought, E. N. (C.)
Jackson, T. W. (M.)
Jump, H. D. (M.)
Keeler, J. C. (C.)
Leidy, C. F. M. (C.)
Lipshutz, B. (L.)
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Norris, G. W. (Col.)
O'Brien, M. C. (C.)
Pilling, G. P., Jr. (C.)
Rodman, J. S. (M.)
Saylor, E. S. (C.)
Schwartz, R. (L.)
Shoemaker, W. T. (M.)
Tunis, J. P. (C.)
Van Lennep, G. A. (C.)
Wood, G. B. (M.)
Pittsburgh—Anderston, J. H. W. (C.)
Bradford, M. A. (L.)
Brown, S. S. (C.)
Burns, R. G. (C.)
Emmerling, K. A. (M.)
Foster, E. N. (L.)
Goehring, W. N. (L.)
Gorfinkell, J. (L.)
Grazier, G. G. (L.)
Marshall, C. C. (C.)
McKenna, W. B. (C.)
Milligan, J. D. (M.)
Sable, D. E. (M.)
Tucker, G. F. (C.)

V. 191

Pittston—Rubinstein, H. (L.)
Reading—Darrah, L. C. (L.)
Rorke, J. H. (C.)
Reedsville—Kohler, B. R. (C.)
Rimersburg—Summerville, H. B. (C.)
Schuylkill—Weaver, R. F. (L.)
Scranton—Douglas, J. N. (C.)
Gardner, A. P. (L.)
Hower, H. V. (C.)
Jenkins, D. J. (C.)
Sharon—Marshall, C. C. (C.)
White, H. (C.)
Sinking Spring—Matternes, J. G. (C.)
Somerset—Norris, J. F. (L.)
Springville—Diller, W. L. (C.)
St. Marys—Le Van, J. K. (C.)
St. Peters—Smith, H. T. (C.)
Sunbury—Gass, H. W. (C.)
Geise, S. B. (L.)
Swarthmore—Carr, F. C. (L.)
Tulford—Cope, R. Z. (L.)
Warren—Condit, G. S. (L.)
Washington — Edwards, D. H. (L.)
Waynesburg—Knox, J. A. (C.)
Wilkes-Barre—Davis, W. J. (C.)
Freeman, S. L. (C.)
Williamsburg—Frye, J. C. (L.)
Williamsport—Hull, W. W. (C.)
Lamade, A. C. (C.)
Wysox—Down, H. C. (L.)

RHODE ISLAND

Pawtucket—Vance, M. E. (C.)
Providence—Coughlin, F. C. (L.)
Heaton, H. W. (C.)
Metcalf, R. (L.)
Rushton, P. H. (L.)
Shaw, R. H. (L.)
Sweeney, J. W. (C.)
Wyman, T. C. (L.)
Woonsocket—Flynn, T. S. (L.)

SOUTH CAROLINA

Anderson—Ross, C. F. (C.)
Bennettsville—Kirkpatrick, L. R. (M.)
Charleston—Deas, H. (L.)
Lynch, K. M. (C.)
Chester—Malone, H. B. (C.)
McLurkin, C. A. (L.)
Columbia—Riser, L. A. (C.)
Cottageville—Miller, C. J. (L.)
Florence—Graham, R. M. (L.)
Gray Court—Gray, E. B. (L.)
Greer—Wood, L. W. (L.)
Hemingway—Baker, W. B. (L.)
Lexington—Folk, R. H. (L.)
Orangeburg—Green, C. I. (L.)
Pendleton—Lawrence, J. H. (C.)
Pickens—Robinson, L. F. (L.)
Ridge Springs—Smith, L. J. (C.)
Rock Hill—Friedheim, S., Jr. (L.)
Saluda—Wise, O. P. (L.)
St. George—Behling, A. S. (L.)
Walterboro — Ackerman, W. B. (C.)

SOUTH DAKOTA

Aberdeen—Whiteside, J. D. (C.)
Lake Preston—Mahin, F. M. (C.)
Sioux Falls—Culver, C. F. (C.)
Donue, W. E. (L.)
Waubay—Doupe, J. H. (L.)
Webster—Brown, A. E. (C.)

TENNESSEE

Chattanooga—Fletcher, H. Q. (L.)
Chestnut Mound—King, J. H. (C.)
Cottage Grove—Paschall, E. B. (L.)
Dyersburg—Berry, J. B. (L.)
East Chattanooga—Eldridge, J. C. (C.)
Franklin—German, D. (C.)
Knoxville—Haun, L. A. (C.)
Layman, R. B. (C.)
Newman, R. H. (M.)
Mason—Grimmitt, W. A. (L.)
Memphis—Baird, W. O. (L.)
Davenport, R. R. (L.)
Watson, W. A. (L.)
Morristown—Ruble, W. G. (C.)
Mosheim—Cloyd, T. D. (L.)
Murfreesboro—White, B. N. (L.)
Nashville—Horan, W. A. (L.)
Newhern—Brewer, J. D. (C.)
Rudolph—Gill, J. M. (L.)
Sewanee — Kirby-Smith, R. M. (M.)
Sparta—Johnson, W. M. (C.)
St. Elmo—Gilbert, E. A. (L.)

TEXAS

Amarillo—Murphy, G. S. (M.)
Athens—Webster, J. K. (L.)
Atlanta—Long, R. L. (L.)
Bandera—Butler, J. O. (L.)
Bay City—Jones, C. P. (C.)
Beaumont—Mann, D. A. (C.)
Swonger, J. B. (C.)
Beeville—Neeley, H. (C.)
Turner, A. (L.)
Bells—Gould, W. C. (L.)
Bowie—Lawson, J. T. (C.)
Breckenridge—Rhodes, B. F. (L.)
Brownwood—Dildy, J. E. (L.)
Camden—Crimes, I. (L.)
Christoval—Wilkison, W. S. (L.)
Coleman—Lynch, T. P. (L.)
College Station—Ehlinger, O. (C.)
Dallas—Dickey, E. V. (L.)
Duncan, M. J. (C.)
Ellis, L. C. (L.)
Jones, W. D. (C.)
McReynolds, J. O. (M.)
Decatur—Fullingim, P. J. (L.)
Eastland—Roaten, S. P. (L.)
El Paso—Dysart, J. C. (C.)
Rogers, W. P. (C.)
Ennis—Campbell, W. E. (C.))
Germany, J. W. (C.)
Flatonia—Kotzebus, A. M. (C.)
Galveston—Kenner, E. N. (C.)
Garner—Barrett, L. C. (L.)
Houston—Morris, R. T. (C.)
Parkhill, F. G. (C.)
Jonesboro—Crawford, C. H. (C.)
Lamesa—Gilliam, H. A. (L.)
Lone Oak—Lander, R. G. (L.)
Mart—Cannon, I. F. (L.)
Mason—Baze, P. A. (L.)
Mount Calm—Morris, T. M. (L.)
Munday—Davis, J. D. (L.)
Paris—Fitzpatrick, W. (C.)
Ramsey, F. D. (L.)
Pecos—Camp, J. (L.)
Pharr—Doss, J. M. (L.)
Pittsburg—Lacy, R. Y. (C.)
Pontotoc—Wilson, R. A. (L.)
Port Arthur — Swearingen, M. (L.)
Quail—Moss, E. W. (L.)
Red Oak—Rogers, J. O. (L.)
Richmond—O'Farrell, J. M. (C.)
Rockdale—Sessions, L. P. (C.)
Rockwall—Austin, J. L. (L.))
Sabinal—Hudson, S. B. (C.)
San Angelo—Lynn, B. (L.)
San Antonio—Clavin, E. C. (C.)
Pagenstecher, G. A. (L.)
Sherman — McElhannon, A. M. (C.)
Strawn—Pedigo, W. S. (C.)
Tyler—Smith, L. E. (C.)
Valley View—Cunningham, O. W. (L.)
Village Mills—Anderson, W. W. (L.)
Waco—McWhirter, W. L. (L.)
Weatherford — MacNelly, C. M. (C.)
Westhoff—Frey, C. (L.)
Wichita Falls—Lane, A. L. (C.)

UTAH

Heber—Dannenberg, B. A. (L.)
Hatch, H. R. (L.)
Murray—Pace, G. H. (L.)
Ogden—Badcon, S. W. (C.)
Park City—Bardsley, W. J. (C.)
Provo—Taylor, F. W. (M.)
Salt Lake City—Field, G. J. (L.)
Giesy, J. U. (C.)
Murphy, A. J. (C.)

VERMONT

Brattleboro—Rice, T. (C.)
Burlington—Murray, E. F. (C.)
Hardwick—Crane, E. M. (C.)
Montpelier—Lindsay, W. (C.)
Newcomb, L. A. (C.)
Morrisville—Slayton, W. T. (C.)
Waitsfield—Howard, W. J. (C.)
Winooski—Paulson, M. J. (L.)

VIRGINIA

Abingdon—Le Gannaway, W. (L.)
Alexandria—Powell, L. (M.)
Fayerdale—Lancaster, A. C. (C.)
Glamorgan—Ramsey, J. T. (L.)
Hampton—Bassett, B. (L.)
Harrisonburg—Firebaugh, T. C. (C.)
Lovettsville—Foley, C. E. (L.)
Manassas—Newman, W. A. (M.)
Middletown—Williams, T. A. (L.)
Monrovia—Derby, A. P. (C.)
Newport News—Jones, J. W. C. (C.)
Norfolk—Hunter, J. W., Jr. (C.)
Webb, J. O. (L.)
Petersburg—McGill, E. L. (C.)
Nixon, E. J. (C.)
Osborne, J. D. (C.)
Richmond—Courtney, C. B. (L.)
Righter, F. P. (L.)
Vorbrinck, T. M. (L.)
Roanoke—Saunders, W. H. (C.)

WASHINGTON

Aberdeen—Hopkinson, L. (L.)
Cashmere—Martin, H. (L.)
Fairfield—Ensley, G. W. (C.)
La Conner—Greason, C. E. (L.)
Lyman—Blair, F. M. (C.)
North Yakima—Brown, W. M. (C.)
Redmond—Davis, G. A. (C.)
Republic—Bevis, E. M. (L.)
Seattle—Gardner, F. P. (L.-C.)
Null, M. M. (M.)
Quilliam, L. R. (L.)
Wilson, C. E. (L.)
Winslow, K. (M.)
Sedro-Woolley — Frazee, C. M. (L.)
Selah—Makins, H. M. (L.)
Spokane—Ingersoll, E. L. (C.)
Matthews, J. G. (C.)
Reger, E. L. (C.)
Tacoma—McCreery, C. R. (C.)
Van Pelt, R. S. (L.)
Walla-Walla — Robinson, F. C. (C.)

WEST VIRGINIA

Bluefield—Hare, O. S. (C.)
Bowen—Peirce, G. L. (C.)
Charleston—Nicholson, H. G. (C.)
Clarksburg—Gribble, O. S. (C.)
Dorothy—Pettry, H. H. (C.)
Eckman—Hammond, H. G. (L.)
Erbacon—Stroud, C. G. (L.)
Farmington—Vaughan, C. M. (L.)
Freemansburg—Hall, E. T. W. (C.)
Huntington—Hatfield, H. D. (M.)
Heald, W. W. (L.)
Kenova—Goff, T. N. (L.)
Mannington—Leahy, W. J. (C.)
Martinsburg — Porterfield, M. H. (L.)
Moundsville—Covert, O. F. (C.)
Newburg—Fortney, F. D. (C.)
Parkersburg—Deem, C. N. (L.)
Griffith, O. H. (L.)
Pennsboro—Jones, L. P. (C.)
Point Pleasant — Girard, A. R. (L.)
Pullman—Fling, I. S. W. (L.)
Reedy—Cordon, A. T. (L.)
St. Albans—Shirkey, C. P. (C.)
Wilson, W. H. (C.)
Talcott—Ryan, D. M. (C.)
Wallace—Whisler, H. A. (L.)
Weston—Cure, M. D. (C.)
Wheeling—Cracraft, W. A. (C.)
Fulton, W. S. (C.)
Oesterling, H. E. (C.)

WISCONSIN

Bayfield—Mertens, H. G. (C.)
Bloom City—Ross, J. M. (L.)
Boscobel—Tuffley, F. S. (C.)
Chilton—Forkin, W. P. (C.)
Clintonville—Jefferson, H. A. (C.)
Cuba City—Donnell, J. E. (L.)
Delavan—Rice, C. W. (L.)
Elderon—Phelps, E. J. (C.)
Fond du Lac — Marshall, F. P. (L.)
Janesville—Fifield, G. W. (C.)
Munn, W. A. (L.)
Junction City—Reis, G. W. (L.)
Kaukauna—Flanagan, G. J. (L.)
Kenosha—Robinson, H. A. (C.)
La Crosse—Maurer, A. A. (C.)
Mattoon—Partridge, O. F. (C.)
Mayville—Docter, J. C. (L.)
Milladore—Myers, C. E. (L.)
Milwaukee—Bachinski, L. J. (L.)
Dickinson, G. H. (C.)
Eisenburg, P. J. (L.)
Gillespie, W. W. (L.)
Gramling, H. J. (L.)
Madison, J. D. (C.)
Warfield, L. M. (M.)
Mineral Point — Gratiot, W. M. (C.)
New London—Borchardt, A. L. C. (C.)
Oconto Falls—Goggins, R. J. (C.)
Oshkosh—Andrews, N. (C.)
Bickel, E. E. (C.)
Haubrick, H. J. (L.)
Seneca—Farrell, T. E. (C.)
Sheboygan—Nichols, R. M. (C.)
St. Nazianz—Minahan, J. J. (L.)
Stockbridge—Boern, R. E. (L.)
Two Rivers—Farrell, A. M. (M.)
Viroqua—Lauder, C. E. (C.)
Watertown—Haney, F. C. (C.)

WYOMING

Lander—Cooper, A. H. (C.)
Lane, C. E. (C.)
Laramie—Price, J. W. (L.)
Lusk—Dale, D. H. (L.)
Upton—Ross, D. C. (L.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Arizona

To Camp Travis, Texas, as tuberculosis examiner, from Camp MacArthur, Capt. R. E. THOMAS, Phoenix.

Arkansas

To Fort Sam Houston, Texas, base hospital, from Camp Logan, Capt. J. I. SCARBOROUGH, Little Rock.

California

To Camp Fremont, Calif., base hospital, from Camp Kearney, Capt. T. REA, Oakland; Lieut. H. D. BARNARD, Sacramento.

To Camp Lewis, Wash., from Vancouver Barracks, Major S. B. WHITING, Los Angeles; from Washington, Capt. C. A. BELL, Santa Barbara.

To Camp Travis, Texas, as tuberculosis examiner, from Camp MacArthur, Lieut. L. E. TRETHAWAY, French Camp.

To Fort McHenry, Md., from Army Medical School, Lieut. T. M. HART, Los Angeles.

To San Francisco, Calif., Letterman General Hospital, from Camp Kearney, Capts. W. W. MACKENZIE, A. C. THORPE, Lieut. A. M. SCHOLZ, Los Angeles; from Fort Sill, Capt. A. H. REINSTEIN, San Francisco.

Canal Zone

To Panama Canal Zone, from Walter Reed General Hospital, Capt. L. B. BATES, Ancon.

Colorado

To Camp Devens, Mass., from Camp Custer, Lieut. G. A. ASHBAUGH, Central City.

To Eastview, N. Y., from Camp MacArthur, Lieut. C. E. CONDON, Breckenridge.

Connecticut

To Camp Custer, Mich., from Camp MacArthur, Capt. R. S. STARR, Hartford.

Delaware

To Cape May, N. J., from Fort Adams, Major G. I. McKELWAY, Dover.

District of Columbia

To Army Medical School, from Camp Greene, Lieut. A. L. GUERRA, Washington.

To Camp Meade, Md., base hospital, from Dayton, Ohio, Capt. E. M. HASBROUCK, Washington.

To Cape May, N. J., from the Surgeon-General's Office, Col. W. F. TRUBY.

Florida

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. W. T. LANIER, Homestead.

Georgia

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. R. DUCAT; from New Haven, Lieut. T. H. CLARK, Douglas.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. C. R. LANAHAN.

To Fort Benjamin Harrison, Ind., from Camp Meade, Major J. H. BUTLER, Augusta.

To Fort Porter, N. Y., from Fort Oglethorpe, Lieut.-Col. J. E. BASTION.

To Fort Sheridan, Ill., as commanding officer, from Fort Oglethorpe, Col. W. N. BISPHAM.

To Manila, P. I., from Fort Oglethorpe, Capt. E. L. COOK; Lieut. W. M. CAFFEE.

To Pittsburgh, Pa., from Fort Oglethorpe, Capt. C. A. STAYTON.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Colonia, Capt. J. M. BARNETT, Albany.

To Walter Reed General Hospital, from Fort Oglethorpe, Lieut.-Col. M. ASHFORD.

Illinois

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. I. H. CHILCOTT, Chicago.

To Camp Dix, N. J., base hospital, from New Haven, Lieut. C. S. BOWMAN, Alsey.

To Camp Gordon, Ga., from Walter Reed General Hospital, Lieut. J. R. SHOLL, Peoria.

To Camp Zachary Taylor, Ky., as tuberculosis examiner, from Camp MacArthur, Lieut. L. NEWMAN, Chicago.

To Chicago, Ill., from Fort Riley, Lieut. N. C. BULKLEY, Chicago; from Long Beach, N. Y., Lieut. J. A. CONNELL, Waukegan.

To Detroit, Mich., from Camp Logan, Major F. G. DYAS, Chicago.

To Fort Sheridan, Ill., from Camp Custer, Lieut. P. N. WASSEL, Moline; from Camp Shelby, Lieut. Y. JORANSON, Chicago.

To Miami, Fla., Chapman Field, from Arcadia, Major L. C. COLLINS, Chicago.

To Mineola, N. Y., Hazelhurst Field, from Plattsburg Barracks, Capt. W. O. KROHN, Chicago.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Meade, Capt. F. P. HORAN, Evanston.

Indiana

To Camp Custer, Mich., base hospital, from New Haven, Lieut. J. E. ROGERS, Marion.

To Camp Dodge, Iowa, base hospital, from New Haven, Lieut. F. A. KIMBLE, Anderson.

To Hot Springs, N. C., from Camp Zachary Taylor, Lieuts. E. O. DANIELS, Marion; C. C. MACKEY, Whiting.

To Jeffersonville, Ind., from Camp Grant, Major D. C. PEYTON, Jeffersonville.

The following order has been revoked: *To Eastview, N. Y.*, from Fort Oglethorpe, Lieut. W. S. COLEMAN, Rushville.

Iowa

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. B. MILLER, Tabor.

To Camp Dodge, Iowa, base hospital, from Camp Lee, Capt. J. G. ROBERTS, Oskaloosa.

To Camp Sherman, Ohio, base hospital, from Boston, Lieut. W. J. FENTON, Mystic.

To San Francisco, Letterman General Hospital, from Camp Kearney, Capt. R. H. RYLOS, Hudson.

Kansas

To Camp Beauregard, La., base hospital, from Camp Bowie, Capt. R. R. NEVITT, Mildred.

To Fort Riley, as tuberculosis examiner, from Camp MacArthur, Capt. L. S. HARVEY, Council Grove.

To Fort Robinson, Neb., from Fort Riley, Lieut. W. S. HUNTER, Norton.

Kentucky

To Camp Grant, Ill., base hospital, from Walter Reed General Hospital, Lieut. G. L. THOMPSON, Lovelaceville.

To Camp Kendrick, N. J., from Columbus, Capt. J. M. MORRIS, Chestnutburg.

To Camp Upton, N. Y., from Fort Oglethorpe, Lieut. W. M. WATKINS, Louisville.

To Garden City, N. Y., from Mineola, Capt. G. A. ROBERTSON, Louisville.

To Hot Springs, N. C., from Fort Oglethorpe, Capt. J. H. HOHNSTEDT, Fort Thomas.

To Plattsburgh Barracks, N. Y., from Camp Joseph E. Johnston, Capt. J. M. FERGUSON, Central City.

Maine

To Army Medical School for instruction, from Fort McPherson, Capt. R. VAN NESS BLISS, Bangor.

To Fort Leavenworth, Kan., from Camp Crane, Major F. H. JORDAN, South Portland.

Maryland

To Army Medical School for instruction, from the Surgeon-General's Office, Major R. T. TAYLOR, Baltimore.

To Camp Meade, Md., base hospital, from Boston, Lieut. G. R. MICKLETWAITE, Baltimore.

To Hot Springs, N. C., from Camp Zachary Taylor, Capt. T. R. PAYNE, Corbett.

To the Surgeon-General's Office, from Washington, Brig.-Gen. W. S. THAYER, Baltimore.

Massachusetts

To Camp Devens, Mass., base hospital, from Camp Zachary Taylor, Capt. W. I. CLARK, Jr., Worcester.

To Camp Meade, Md., base hospital, from Camp Devens, Major A. W. SELLARDS, Boston.

To Camp Upton, N. Y., from Camp Dix, Lieut. F. W. CRAWFORD, Holbrook.

To East Norfolk, Mass., from Plattsburg Barracks, Major G. E. McPHERSON, Harding.

To Garden City, N. Y., from Minneapolis, Capt. J. G. JENNINGS, Boston.

To Lakewood, N. J., from Camp A. A. Humphreys, Capt. G. G. SMITH, Boston.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Boston, Capt. F. G. BARNUM, Coolidge Corner; from Lakewood, Lieut. R. C. JONES, Fitchburg.

To Williamsbridge, N. Y., from Fort Constitution, Capt. F. T. CLARK, Westfield.

Michigan

To Camp Dix, N. J., and on completion *to Camp Zachary Taylor, Ky.*, from the Surgeon-General's Office, Capt. W. D. MAYER, Detroit.

To Camp Hancock, Ga., from Camp Jackson, Capt. H. W. EMERSON, Ann Arbor.

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. H. S. COLE, Whitehall.

To Detroit, Mich., from Camp Abraham Eustis, Lieut. L. B. COWEN, Detroit; from Camp Sevier, Lieut. R. H. REUDEMANN, Ann Arbor.

To Garden City, N. Y., from Mineola, Lieut. W. A. DEFNET, Detroit.

The following orders have been revoked: *To Camp Dodge, Iowa*, to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. J. H. RAPP, Lansing. *To Fort Snelling, Minn.*, from Fort Oglethorpe, Lieut. D. W. PATTERSON, Port Huron.

Minnesota

To Pittsburgh, Pa., from Fort Porter, Lieut. A. D. CORNIEA, St. Paul.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort McPherson, Lieut. S. V. HODGE, Minneapolis.

To Walter Reed General Hospital, from Mineola, Capt. A. S. HAMILTON, Minneapolis.

The following order has been revoked: *To Fort Des Moines, Iowa*, from Camp Dodge, Capt. A. N. COLLINS, Duluth.

Mississippi

To Camp A. A. Humphreys, Va., to examine the command for nervous and mental diseases, from Fort McPherson, Lieut. W. M. MERRITT, Boyle.

Missouri

To Arcadia, Fla., Carlstrom Field, as flight surgeon, from Montgomery, Capt. J. H. TIMBERMAN, Marston.

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. C. L. CONRAD, Pleasant Hill.

To Camp Dix, N. J., base hospital, from Camp Sevier, Lieut. D. J. ROYER, Joplin.

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. C. C. SIMMONS, Bunker.

To Cape May, N. J., from Fort Oglethorpe, Major M. WIENER, St. Louis.

To Denver, Colo., from Garden City, Capt. J. J. REILLY, St. Louis.

To East Norfolk, Mass., from Camp Greene, Capt. A. G. WICHMANN, St. Louis.

To Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. F. S. TARLETON, St. Louis.

To Fort Sheridan, Ill., from Camp Sherman, Capt. C. A. LEAVY, St. Louis.

To Hoboken, N. J., from Pittsburg, Kan., Capt. R. B. BREWSTER, Kansas City.

To Hot Springs, N. C., from Camp Dodge, Capt. F. J. KREBS, St. Louis.

To Manila, P. I., from Fort Oglethorpe, Lieut. G. W. RICE, Kansas City.

To Pittsburgh, Pa., from Newport News, Capt. T. M. PAUL, St. Joseph.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Otisville, Capt. G. W. KOENIG, St. Louis.

To West Baden, Ind., from Camp Dodge, Capt. J. M. BRADLEY, St. Louis.

Montana

To Camp Lewis, Wash., base hospital, from New Haven, Lieut. A. B. ECKERDT, Helena.

To Hot Springs, N. C., from Camp Zachary Taylor, Lieut. J. E. ARNOLD, Miles City.

Nebraska

To Camp Gordon, Ga., to examine the command for nervous and mental diseases, from Camp MacArthur, Capt. B. F. WILLIAMS, Lincoln.

New Hampshire

To Garden City, N. Y., from Mineola, Capt. G. H. PARKER, Hanover.

To Scituate, Mass., from Penniman, Va., Capt. W. P. CRAIG, Walpole.

New Jersey

To Army Medical School, from Fort Oglethorpe, Capt. A. C. REEVES, East Orange.

To Camp Dix, N. J., base hospital, from Camp Gordon, Lieut. J. N. PANNULLO, Newark.

To Camp Travis, Texas, as tuberculosis examiner, from Camp MacArthur, Lieut. L. V. ROSENTHAL, Trenton.

To Camp Upton, N. Y., from Camp Dix, Capt. A. H. WARD, Paterson.

To Garden City, N. Y., from Mineola, Capt. A. B. RUSSELL, East Orange.

To Hoboken, N. J., from Camp Lee, Major C. E. MacDONALD, Salem.

To Washington, D. C., Surgeon-General's Office, from Cape May, Col. P. F. STRAUB.

New York

To Camp Dix, N. J., base hospital, from Camp Gordon, Capt. B. F. BLACKMAR, Brooklyn.

To Camp Dodge, Iowa, from Camp MacArthur, Lieut. R. WEST, New York.

To Camp Fremont, Calif., base hospital, from Madison Barracks, Lieut.-Col. C. W. HAVERKAMPF.

To Camp Grant, Ill., from West Baden, Lieut. L. HAUSMAN, New York. Base hospital, from Army Medical School, Lieut. J. W. SMITH, Jr., Brooklyn.

To Camp Lee, Va., base hospital, from Camp Sevier, Capt. C. C. SICHEL, New York.

To Camp Sherman, Ohio, as tuberculosis examiner, from Camp Pike, Lieut. F. GRABOFF, New York.

To Camp Travis, Texas, from Camp Joseph E. Johnston, Major W. C. MILLER, New York.

To Camp Zachary Taylor, Ky., as tuberculosis examiner, from Camp MacArthur, Lieut. E. F. SAMPSON, New York.

To East Norfolk, Mass., from Camp Lee, Lieut. A. L. OBERDORFER, New York; from Edgewood, Md., Lieut. H. C. BURGESS, Canandaigua.

To Eastview, N. Y., from New Haven, Lieut. I. E. LISS, New York.

To Everman, Texas, Barron Field, as flight surgeon, from Lonoke, Ark., Capt. W. A. SCRUTON, New York.

To Fort Des Moines, Iowa, from Camp Sherman, Lieut. R. W. MORIARITY, New York.

To Fort Ontario, N. Y., from Panama Canal Department, Capt. E. T. RAY, New York.

To Hoboken, N. J., from Camp Hancock, Lieut. H. B. FEUERSTEIN, New York; from Lexington, Ky., Capt. G. F. MILLS, Oneida.

To Lakewood, N. J., from New Haven, Major J. W. PRICE, Saranac Lake.

To Madison Barracks, N. Y., from Pittsburgh, Capt. R. D. BAKER, Summit.

To Mineola, N. Y., Hazelhurst Field, from Camp A. A. Humphreys, Lieut. E. A. EVERETT, Middletown.

To Otisville, N. Y., from Camp Shelby, Lieut. H. A. LATANE, Mount McGregor.

To Plattsburg Barracks, N. Y., from Fort Thomas, Ky., Lieut. S. W. MILLER, Jr., New York.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Azalea, Capt. L. H. FINCH, Amsterdam; from Colonia, Lieut. W. A. BEHAN, Binghamton; from Fort Oglethorpe, Capt. A. A. MOORE, New York.

To West Baden, Ind., from Camp Sherman, Capt. E. A. CARPENTER, New York.

To Williamsbridge, N. Y., from Walter Reed General Hospital, Capt. N. E. TITUS, New York.

The following orders have been revoked: *To Army Medical School* for instruction, from Fort Oglethorpe, Lieut. C. A. WISCH, Niagara Falls. *To Cape May, N. J.*, from Fort Oglethorpe, Lieut. G. C. ANDERSON, New York. *To Fort McPherson, Ga.*, from Camp Crane, Lieut. J. L. KINNER, Elmira.

North Carolina

To Azalea, N. C., from Otisville, Lieut. J. W. WILLCOX, Laurel Hill.

To Fort Ontario, N. Y., from Camp Greene, Lieut. W. H. MYTINGER.

Ohio

To Army Medical School for instruction, from Camp Abraham Eustis, Capt. L. B. ZINTMASTER, Massillon.

To Aberdeen, Md., from Penniman, Va., Lieut. L. V. BATES, Columbus.

To Camp Dix, N. J., from Camp Greene, Capt. H. B. BLAKEY, Columbus.

To Camp McClellan, Ala., from Camp MacArthur, Lieut C. H. CHASE, Cleveland.

To Fort Benjamin Harrison, Ind., from Camp MacArthur, Capt. G. H. WETZEL, Sapulpa.

To Fort Oglethorpe, from Camp Dodge, Lieut. H. G. BEATTY, Columbus.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Boston, Capt. H. B. DORNBLASSER, Springfield.

Oklahoma

To Everman, Texas, Barron Field, from Wichita Falls, Texas, Lieut. L. A. NEWTON, Oklahoma City.

Oregon

To Camp Lewis, Wash., from Portland, Ore., Capt. C. E. HAWKE, Forest Grove; Lieut. J. L. ELWOOD, Maupin; from Vancouver Barracks, Lieut. M. C. FOX, Lakeview.

Pennsylvania

To Camp Devens, Mass., from Rockefeller Institute, Major J. V. KLAUDER, Philadelphia.

To Fort Sam Houston, Texas, base hospital, from Camp Hancock, Lieut. W. H. HAINES, Philadelphia; from Camp Sevier, Capt. G. S. DEIBERT, Allentown.

To Fort Terry, N. Y., from New Haven, Conn., Lieut. A. D. DYE, Masten.

To Hoboken, N. J., from Plattsburg Barracks, Major T. WEISENBURG, Philadelphia.

To Metuchen, N. J., from Camp Pike, Lieut. C. L. McCOY, Pittsburgh.

To Miami, Fla., Chapman Field, from St. Paul, Capt. J. E. STRUTHERS, Danville.

To New Haven, Conn., from Fort Oglethorpe, Capt. C. M. MONTGOMERY, Philadelphia.

To Pittsburgh, Pa., from Camp Meade, Lieut. E. S. WEIMER, Pittsburgh.

To Walter Reed General Hospital, from Cape May, Lieut C. A. BEHNEY, Myerstown; from Fort Terry, Lieut. E. RANDALL, Jr., Philadelphia.

To Washington, D. C., St. Elizabeth's Hospital, from New Haven, Lieut. C. H. MANLOVE, Jr., Altoona. From Surgeon-General's Office, Camp Meade, Capt. W. J. EZICKSON, Philadelphia.

The following order has been revoked: *To Camp Bowie, Texas*, from New York, Lieut. E. P. WICKERHAM, Pittsburgh.

Rhode Island

To Fort Oglethorpe, from Camp Crane, Lieut. N. H. COPENHAVER, Providence.

To Newport News, Va., from Camp Hancock, Capt. F. A. FEARNEY, Providence.

The following order has been revoked: *To Fort McPherson, Ga.*, from Fort Oglethorpe, Capt. N. C. BAKER, Providence.

South Carolina

The following order has been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieut. F. L. MARTIN, Mullins.

South Dakota

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. D. W. SULLIVAN, Britton.

Tennessee

To Army Medical School, from Fort Oglethorpe, Lieut. E. L. HOOPER, Cordova.

To Camp Upton, N. Y., from Camp Dix, Lieuts. M. KAPLAN, Memphis; L. F. VERDEL, Normal.

Texas

To Army Medical School, from Fort Oglethorpe, Capt. W. H. MORROW, Dunn.

To Austin, Texas, from Mineola, Capt. L. C. G. BUCHANAN, Big Springs.

To Camp Cody, N. M., base hospital, from Southern Department, Capt. F. L. PASCHAL, San Antonio.

To Camp Gordon, Ga., to examine the command for nervous and mental diseases, from Camp MacArthur, Lieut. C. W. CASTNER, Terrell.

To Camp Jackson, S. C., from Camp MacArthur, Lieut. M. B. BADT, Fort Worth.

To Camp Logan, Texas, from Camp MacArthur, Capt. J. B. LEONARD, Houston. Base hospital, from Walter Reed General Hospital, Major J. A. HILL, Houston.

To Camp Travis, Texas, as assistant to the camp surgeon, from Camp Jackson, Major F. HARRISON, Ralls.

To Fort Bayard, N. M., from Camp Hancock, Major I. S. KAHN, San Antonio.

To Fort Bliss, Texas, base hospital, from Fort Sill, Lieut. G. TURNER, Iredell.

To Fort Leavenworth, Kan., from Camp Crane, Capt. L. M. WEINFIELD, San Antonio.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Fort McHenry, Capt. M. W. SHERWOOD, Temple.

Utah

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. G. N. CHRISTY, Vernal.

Vermont

To Camp Shelby, Miss., base hospital, from Camp Wheeler, Lieut. L. M. KELLEY, Manchester Center.

To Pittsburgh, Pa., from Camp Forrest, Lieut. A. A. CROSS, Williamstown.

Washington

To Camp Lewis, Wash., from Vancouver Barracks, Capt. E. S. REEDY, Seattle.

To Fort George Wright, Wash., from Fort Riley, Capt. J. W. HEWETSON, Seattle.

To Riverside, Calif., March Field, as flight surgeon, from San Diego, Capt. G. W. BEELER, Seattle.

West Virginia

The following order has been revoked: *To Camp Lee, Va.*, base hospital, from Edgewood, Lieut E. B. HENSON, Charleston.

Wisconsin

To Camp Sherman, Ohio, as tuberculosis examiner, from Camp Pike, Capt. H. C. CALDWELL, St. Croix Falls.

Wyoming

To St. Louis, Mo., from Fort D. A. Russell, Col. B. J. EDGER, Jr.

UNITED STATES PUBLIC HEALTH SERVICE

Surg. B. J. LLOYD, relieved at Bremerton and Seattle, Wash., proceed to the Hygienic Laboratory for duty.

Surg. FRIENCE SIMPSON, relieved at New Orleans, La., and from temporary duty at Mobile Quarantine Station. Proceed to Fort Stanton, N. Mex., for duty.

Passed Asst. Surg. C. P. KNIGHT, proceed to Little Rock, Ark., on temporary duty.

Passed Asst. Surg. CARL MICHEL, relieved at Hartford, Conn., proceed to Manteo, N. C., on duty in the control of influenza epidemic.

Asst. Surg. R. R. SPENCER, detached from duty with the U. S. Navy.

Asst. Surg. C. R. ESKEY, proceed to the Savannah, Ga., Quarantine Station for temporary duty.

Asst. Surg. R. W. HART, proceed to the Army Hospital at Colonia, N. J., for observation of plastic bone operations.

Asst. Surg. R. L. WAUGH, relieved from duty on Coast Guard Cutter *Bear*.

Scientific Asst. SEVERANCE BURRAGE, relieved at Ayer, Mass., report to National Tuberculosis Association for duty.

San. Insp. B. F. DARYMPLE, relieved at Macon, Ga., proceed to Newport News, Va., for duty in extracantonment sanitation.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Personal.—Dr. James M. Boyd, Ravana, was appointed acting assistant surgeon, U. S. P. H. S., Oct. 18, 1918, and sent to Foreman for relief work in the influenza outbreak, and from there to Little Rock, Conway and Yell counties.——Drs. Cyrus F. Crosby, Heber Springs, and Hercules R. Webster, Texarkana, have been appointed members of the state board of health for a period of four years.

COLORADO

Personal.—Dr. William M. Moore, LaJunta, is reported to be seriously ill in Orlando, Fla.——In the case of Dr. Bennett Graff, Denver, recently convicted of causing the death of Mrs. Ruth Camp, through an illegal operation, the judgment was reversed by the supreme court, January 6.——Dr. Livingston Farrand, Boulder, president of the University of Colorado, has been made an officer of the Legion of Honor in recognition of his work as head of the Rockefeller Anti-Tuberculosis Commission to France.——Dr. William A. Kickland, Fort Collins, who has been seriously ill with pneumonia, is reported to be improving.——Dr. Edward P. Hummel, Sterling, has been elected president of the Northeastern Colorado Medical Association.

CONNECTICUT

Personal.—Dr. William M. Stockwell has been appointed superintendent of health of Hartford.——Dr. Frederick E. Wilcox, Willimantic, has been appointed medical examiner (coroner) for the towns of Hampton, Chaplin, Windham and Scotland.

New Officers.—The Connecticut Society of Social Hygiene held its eighth annual meeting in the rooms of the Hartford Medical Society, Dec. 18, 1918, and elected the following officers: president, Prof. Charles A. E. Winslow, New Haven (reelected); secretary, Dr. Thomas N. Hepburn, Hartford, and treasurer, Mrs. Josephine B. Bennett, Hartford.

ILLINOIS

Personal.—Dr. Ola A. Kibler, for several years head physician at the State Home for Boys, St. Charles, has resigned to accept a similar position in Milwaukee, and Dr. W. E. Weisman of the State School for the Feebleminded, Lincoln, has been appointed to fill the vacancy.

Sanatorium Soon to Open.—The LaSalle County Tuberculosis Sanatorium at South Ottawa will be formally opened to the public, February 2. Exercises will include addresses by Dr. Kimball W. Leland, Utica, president of the sanatorium board; Dr. George Thomas Palmer, Springfield, president of the Illinois Tuberculosis Association; Dr. C. St. Clair Drake, Springfield, director of the state department of public health; Dr. David R. Lyman, president of the National Tuberculosis Association, and Dr. Hugh M. Orr, LaSalle.

Physician's License Revoked.—The license of Dr. W. J. Crozier to practice medicine and surgery in all their branches in the state of Illinois was revoked by the Department of Registration and Education of Illinois on Saturday, Jan. 18, 1919, for the following specific charges: (*a*) That he has advertised under a name other than his own. (*b*) That he has by false or fraudulent representation obtained or sought to obtain practice in his profession. (*c*) That he has by false or fraudulent representation of his profession obtained or sought to obtain money or any other things of value.

Chicago

Polish Society Elects Officers.—At the annual meeting of the Chicago Polish Medical Society, held, Dec. 30, 1918, the following officers were elected: president, Dr. Wladyslaw A. Kuflewski; vice president, Dr. Marie T. O. Kaczorowski; treasurer, Dr. Francis F. Wisniewski, and secretary, Dr. Michael C. Goy.

Personal.—Casey A. Wood, Lieut.-Col., M. C., U. S. Army, has gone to San Diego, and after a visit there will go to the Leland Stanford, Jr., University for several months of special work.——Capt. H. I. Davis, A. R. C., who has been chief of the neurologic service in the American Red Cross Evacuation Hospital No. 3, located at Treves, has been assigned to the Red Cross Commission for Relief to Poland and has gone to that country.

Irregular Practitioners Fined.—Mr. W. M. Hayes of 3813 State Street, according to his own statement, a "Divine Healer," was arrested by the Department of Registration and Education of the State of Illinois for violating the Medical Practice Act, and fined $100 by Judge Caverly of the Municipal Court of Chicago. When an inspector of the department called on the "Divine Healer," he diagnosed his ailment and said he could cure him by prayer. He took the right hand of the inspector in his hand, laid his left on the inspector's head and offered a prayer, at the conclusion of which he pronounced the inspector cured and demanded $3. The inspector told him he had but $1 and the "Divine Healer" took that in full payment for his services. Within a few hours he was arrested.——Mr. L. W. Miller, a chiropractor at 1705 West Madison Street, was arrested by the department for violating the Medical Practice Act. He was fined $25 and costs for practicing without a license.——Mr. Grant E. Mitchell, an osteopath at 5228 Ellis Avenue, was arrested by the department, and was fined $25 and costs for practicing without a license, in violation of the Medical Practice Act.

MARYLAND

Back from France.—Drs. Hugh H. Young and Dr. Francis X. Kearney, both of Baltimore, have returned from France. Dr. Kearney has resumed his position as superintendent of Mercy Hospital.

New Officers.—Baltimore County Medical Society at its annual meeting, January 15, elected Dr. Frank W. Keating, Owings Mills, president; Dr. John W. Harrison, Middleriver, vice president, and Dr. Alfred T. Gundry, Catonsville, secretary-treasurer.——Talbot County Medical Society at its annual meeting, held at Easton, Dec. 30, 1918, elected the following officers: president, Dr. Edward R. Trippe, Easton; vice president, Dr. James B. Merritt, Jr., Easton, and secretary-treasurer, Dr. Joseph A. Ross, Trappe.

Child Hygiene Bureau Established.—Dr. Mary Sherwood, Baltimore, has been named as the chief of the bureau of child hygiene to be established at the health department. Her assistant will be Dr. Mary Cook Willis. The appointments were announced by the mayor at the conclusion of a conference with Health Commissioner Blake and Drs. William H. Welch, J. H. Mason Knox, Jr., John Howland, John Ruhräh, James M. H. Rowland, Grover F. Powers, William T. Howard, Jr., and John F. Hogan, all of Baltimore. Dr. Mary Sherwood was asked to make a report as to the scope of the work which is to be started this year, out of an appropriation of $30,000 made by the board of estimates.

Increase in Influenza Cases.—With 300 new cases in Baltimore and 1,048 in the counties, influenza established, January 23, a record that has not been equalled since the height of the epidemic last fall. Health Commissioner Blake called a meeting of his advisory board and discussed with them the situation as it has been reported to him by the health wardens, public health nurses and by physicians in private practice. The discussion resulted in the unanimous opinion that all was being done that the exigencies of the case demanded and that better results could not be obtained by more drastic measures which the board felt entirely unnecessary at this time. Of the 1,048 cases reported to the state department of health, 483 came from Allegany County, many of them doubtless carried over from the epidemic period. Reports of 232 new cases came from Dorchester County, which represent actual conditions in that part of the state.

Personal.—Brig.-Gen. John M. T. Finney, Baltimore, chief consulting surgeon of the American Expeditionary Forces, who sailed nineteen months ago for France as head of the John Hopkins Base Hospital Unit, returned to the United States aboard the *Melita*, January 22.——Lieut. Samuel J. Price, Queenstown, who went to France early in 1918, has returned to his home in Centerville. He sustained wounds from shrapnel in the right leg and also was in the hospital for some time suffering from gas poisoning.——Capt. George L. Stickney, who has been in France since May, 1917, serving with the American forces in the Toul sector, is expected to arrive in this country at an early date. Captain Stickney was wounded at Soissons, July 18, and was under treatment in a hospital for three months. Later he was assigned to duty at the American Base Hospital at Autun.——Dr. Jules Duesberg, the Belgian scientist, will sever his connections as a member of the faculty of the Johns Hopkins University and sail for Belgium on February 12. Dr. Duesberg came to Baltimore in 1915. He is a native of Liege and received his

degree as doctor of medicine at Liege University in 1905. In 1906 he went to Kiel, Germany, to take up anatomic research work, and in 1911 was made professor of anatomy at the Liege University, where he will now resume his work. ——Dr. Harry S. Jarrett of Towson, who has been under treatment at the Mercy Hospital, Baltimore, is convalescing at Atlantic City, N. J.——Dr. Joshua Rosett of Baltimore has been under director of an expedition sent out by the Red Cross from Vladivostok to combat a threatened epidemic of typhus in Siberia.

MASSACHUSETTS

Personal.—Dr. Wilfred E. Rounseville has been appointed city physician of Attleboro. —— Major David D. Scannell, M. C., U. S. Army, Jamaica Plain, has returned after nearly six months' service in command of American Hospital No. 7, American Expeditionary Forces, Tours, France. —— Dr. Albert S. Hyman, Boston, has been appointed assistant resident physician to the Long Island Hospital, and Charles M. Flagg, assistant medical advisor of the Consumptive Hospital, Boston.——Dr. Anngenette Fowler-Noble has been elected president of the Westfield Visiting Nurse Association.

Industrial Health Board Named. — President Lowell and Fellows of Harvard University have appointed the following committee to work in conjunction with members of the course in industrial health recently established at the University to extend similar work to mercantile establishments: George W. Mitton, president of the Jordan-Marsh Company; F. Alexander Chandler, president of the Chandler-Farquhar Company; Thomas H. Cory, vice president of the William Filene's Sons Company; George E. Johnson, president of the R. H. White Company; Robert H. Maynard vice president of the R. H. Stearns Company; Felix Vorenberg, vice president and secretary of the Gilchrist Company, and Thomas M. B. Hicks, Jr., secretary. The committee announces that the sum of $50,000 to finance the project will be obtained. The probable scope of the committee includes an investigation into the character of health supervision of mercantile employees in large cities of the United States; an analysis on the basis of this investigation of the best methods of safeguarding the health of such employees; a listing of the complaints which are standard causes for lost time on the part of the mercantile employees; the analysis of the extent to which tuberculosis, venereal disease and other serious conditions, existing in retail stores, and the development of a system of health education for store employees.

NEW YORK

Committee Enlarges Scope.—At the meeting of the executive committee of the Rochester Tuberculosis Committee, held January 16, it was proposed to recommend that the name of the organization be changed to The Tuberculosis Association of Rochester and Monroe County.

Amendment to Sanitary Code.—At a meeting of the public health council of the state department of health, Dec. 4, 1918, Regulation 36 of Chapter II of the Sanitary Code relating to the minimum isolation period for measles was amended to read as follows: "Measles, until at least five days after the appearance of the rash."

Personal.—Dr. John D. Howland, Buffalo, resumed, January 16, his duties as superintendent of the Erie County Hospital which were interrupted by his absence overseas on military service.——Dr. George S. Staniland, Buffalo, has been appointed temporary acting health commissioner during the illness of Acting Health Commissioner Gram.

New York City

Personal.—Dr. Henry Dwight Chapin has been appointed chairman of the Public Health Subcommittee of Governor Smith's Reconstruction Committee formed to solve postwar problems.——Dr. Bernard Sachs has been elested president of the medical board of Mount Sinai Hospital, to succeed Dr. Abraham Jacobi, who has resigned after thirty-five years of active service.

Women Give Hospital to Roosevelt Memorial Expedition.—The Aviation Committee of the National Special Aid Society has voted to contribute the complete hospital equipment and supplies for the Roosevelt Memorial Arctic Expedition which is to start by airplane for the Polar regions in June of this year.

Health Commissioner Copeland Starts New Plan.—Dr. Royal S. Copeland announced, January 25, that he had appointed Dr. S. Dana Hubbard to start the work of the division of industrial hygiene under the new plan which separates this division from the bureau of preventable diseases of which Dr. Louis I. Harris is director.

Influenza Again Increases.—During the sixteenth week of the influenza outbreak in this city, ending January 25, there has been a steadily mounting number of cases recorded each day, until, for January 24, there were 672 new cases reported. This renewed outbreak of the epidemic has caused Health Commissioner Copeland to request the police to again distribute circulars containing suggestions as to how a recurrence of the epidemic may be avoided.

Organizations Endorse Health Bill.—At a meeting of the council of organizations, representing between 400 and 500 bodies in New York, January 24, ways of meeting the present health emergency were discussed, and resolutions were passed approving the Rankin-Robinson bill now before Congress, which has for its aim the preservation of all the bureaus of industrial hygiene. It was the consensus of opinion that it was highly important that matters pertaining to public health be brought to the attention of Congress for proper legislative action, especially infant hygiene. The council of organizations also put itself on record as protesting against the action of Health Commissioner Royal S. Copeland in removing the division of industrial hygiene from the bureau of preventable diseases.

OHIO

State Association Meeting.—The Ohio State Medical Association announces it will hold its seventy-fourth annual meeting in Columbus, May 6 to 8.

License Revoked.—The license of Dr. Levi W. Hunt, Toledo, is said to have been revoked by the state medical board, January 10. Dr. Hunt is said to have been charged with exaggerated advertising.

Legislative Measures for Health Reform.—On the recommendation of a commission to investigate the desirability of compulsory health insurance for Ohio a bill for the reorganization of the health service of the state will soon be presented in the legislature substituting for the present plan of village, township and city boards of health a system making the county or other larger district the local administrative unit. This plan is advocated by Governor Cox. The health insurance commission has also urged legislation providing for physical supervision of pupils in all Ohio schools.

For Public Health Nurses.—Under a bill recently passed as an emergency measure by the state legislature, city boards of health in Ohio will be empowered to employ public health nurses in such numbers as it may deem necessary, subject to the limitation that the city council may fix the maximum number. The bill has special importance in connection with the influenza epidemic. Its effectiveness during present and future epidemics will be limited somewhat, perhaps by the requirement that the nurses employed shall be registered nurses, a feature that has received some criticism in view of the difficulty of procuring nurses during the influenza epidemic, on account of shortage in the supply.

Personal.—Dr. Harry L. Rockwood, head of the tuberculosis sanatorium at Warrensville, is acting temporary health commissioner of Cleveland, succeeding Dr. Robert H. Bishop, Jr., who has resigned to accept a position as assistant director of the American Red Cross Antituberculosis Unit in Italy.——Dr. Louis G. Knowlton, Cleveland, was cut and bruised about the head in a collision between his automobile and an interurban car, near Berea.——Dr. Robert S. Barton, New Philadelphia, announces his retirement after twenty years of practice.——J. M. Ernst, Massillon, is said to have pleaded guilty to furnishing and selling morphin illegally, and to have been fined $50 and costs on each of two charges, January 7.——Dr. Henry W. Lehrer has succeeded Dr. Fred Schoepfle, Jr., as coroner of Erie County.——Dr. Addison D. Hobart, Toledo, has been held to the grand jury under bond of $2,500 on the charge of unlawfully dealing in narcotics.

PENNSYLVANIA

Personal.—Capt. J. Frederick Wagner, Bristol, has been made a major, having been cited for bravery in action in a battle north of L'Homme Mort, when he saved the life of a wounded American soldier at the risk of his own life.

Society Plans Permanent Home.—At the annual banquet of the Lehigh County Medical Society in Allentown, January 14, a campaign for funds for a permanent home for the

society was inaugurated. It is reported that $5,000 were subscribed for the home on this occasion.

Election of Officers.—The Somerset County Medical Society met in Rockwood for the election of officers and the following were elected: president, Dr. George F. Speicher, Rockwood; vice president, Dr. Albert M. Lichty, Salisbury; treasurer, Dr. Carl W. Frantz, Confluence, and secretary, Dr. Henry C. McKinley, Meyersdale.

Held for Violation of Drug Act.—Dr. Charles A. Lanon, Brownsville, is reported to be held under $3,000 bail for alleged violation of the Harrison Narcotic Law.——Dr. John C. Bateson, Scranton, who pleaded nolle contendere to a charge of selling habit forming drugs to addicts, is said to have been fined $500, January 20.

Influenza at Chester.—Dr. Harry C. Donahoo, supervisor of the Chester Department of Health, issued a bulletin, January 25, urging the cooperation of the citizens in stopping the spread of influenza and asking all nurses in the city to register at the City Hall, that they may be called in an emergency. There are from 500 to 600 cases in the city.

Pennsylvania Medical Officers Reported Wounded.—Lieut. Sloan A. Brown, M. C., U. S. Army, Coraopolis, slightly; Lieut. Charles C. Ryan, M. C., U. S. Army, Republic, severely; Lieut. J. Armin Stackhouse, M. C., U. S. Army, Ambler, degree undetermined; Lieut. Lloyd E. Wurster, M. C., U. S. Army, Philadelphia, severely.——Dr. James P. H. Ruddy, Scranton, on duty with the American Expeditionary Forces in France, has been gassed.

Personal.—Elmer A. D. Clarke and Frank L. Martine, lieutenants, M. C., U. S. Army, Bethlehem, were each given a gold watch by the president of the Bethlehem Steel Company in appreciation of their services rendered the hospital of the Northampton house, during the recent epidemic of influenza.——Dr. W. W. Serrill, Kellettville, sustained a fracture of the right leg and other injuries by the overturning of his automobile near Kellettville, January 17. Dr. Serrill was pinned under his automobile for twenty-one hours before he was discovered.——Dr. Harvey M. Becker, Sunbury, associate in the eye, ear, nose and throat department of the George F. Giesinger Memorial Hospital, Danville, resigned, January 14.

Philadelphia

New Entrance Test for University.—Following the example of Columbia University, the University of Pennsylvania intends to institute psychology or intelligence tests to replace the old fashion admission examinations. The test will be similar to those applied to applicants for the Army Training Corps.

Personal.—Dr. John D. McLean, recently appointed assistant commissioner of health, assumed charge of the department, January 3, in the absence of Dr. Edward Martin.——Dr. Charles J. Hatfield succeeds Mr. E. T. Stotesbury as chairman of the Southeastern Pennsylvania Chapter of the American Red Cross.——Dr. George M. Lipeviski has been appointed outdoor physician, bureau of charities.

Epidemic Influenza.—In spite of efforts of the health officials, influenza continues in epidemic form. For the twenty-four hours ending at noon, January 25, 154 new cases had been reported by physicians as compared with 158 cases returned the previous day. During the week ending at noon, January 24, 792 cases of influenza and 267 cases of pneumonia were returned which was an increase of 175 in influenza and a decrease of twelve in pneumonia as compared with the reports for the preceding week.

WASHINGTON

State Board Election.—At a recent meeting of the state board of medical examiners of Washington, Dr. Andrew J. Nelson of Seattle was elected president; Dr. J. E. Hodgson, Spokane, vice president; Dr. Royal A. Gove, Tacoma, treasurer, and Dr. Conrad N. Suttner, Spokane, secretary. There is a vacancy on the board occasigned by the death, in December, of Dr. Elmer D. Olmstead, Spokane.

Personal.—Dr. John B. Anderson has been reelected health officer of Spokane for the ninth time.——Dr. Waldo Richardson, Seattle, was chief surgeon of the steamship, *Northern Pacific*, the Army transport which was recently aground off Fire Island, near New York.——Dr. Carrie A. Benefiel, Spokane, is ill with pneumonia.——Dr. Jerry E. VanderPool has resigned as city and county health officer of Walla Walla County.

WISCONSIN

Residence Given for Nurses' Home.—Mr. and Mrs. Henry Gund, LaCrosse, have given their home, representing a cost of $25,000, completely equipped and furnished as a nurses' home to the LaCrosse Hospital, to be known as the Eleanor Gund Nurses' Home.

Hospital News.—The Ashland General Hospital is enclosed, plastered, and wired and is now almost ready for equipment.——The Emergency Hospital established in Garfield School, Washburn, during the influenza epidemic, has been closed.——Ashland, Bayfield, and Iron counties have appropriated $80,000 toward the Tri-County Tuberculosis Sanatorium to be built near Salmo.

New Plan of Health Administration.—Dr. John J. McGovern, Milwaukee, has worked out a plan for health administration in the state providing for a state health department to take the place of the present board of health with a state commissioner of health appointed by the governor and confirmed by the senate, and assistants to be selected from the civil service lists.

Elections.—At the annual meeting of the Milwaukee Medical Society, January 14, Dr. Hoyt E. Dearholt was elected president, Dr. David E. W. Wenstrand and Alfred L. Kastner were elected vice presidents, Dr. Oscar Lotz was elected secretary, and Dr. Joseph P. McMahon treasurer, all of Milwaukee.——At the annual meeting of the Milwaukee Hygienic Society, January 10, the following physicians were elected to office: president, Dr. George C. Ruhland; vice presidents, Drs. George A. Harlow and Philip F. Rogers, and secretary, Dr. John Vande Erve.——At the annual meeting of the Council of the State Medical Society of Wisconsin, held in Milwaukee, January 13, Dr. Edward Evans, LaCrosse, was elected chairman, Dr. L. Rock Sleyster, Waupun, secretary, and Dr. Sidney S. Hall, Ripon, treasurer. The council discussed a number of legislative measures concerning the more complete restriction of communicable diseases. One of these proposes to extend the period of compulsory quarantine for scarlet fever from three to five weeks.

Personal.—Dr. Calvin F. Hess, Madison, charged with malpractice in the performance of a mastoid operation, was cleared in the trial, January 15.——Dr. Frank H. Turner, Frederic, is reported to have pleaded guilty to sending various messages reporting the illness of relatives of soldiers in order that they may obtain furloughs, and to have been fined $1,000 by the Federal Court at Superior, January 11.——Dr. Ira F. Thompson, Eau Claire, has resigned after six months leave of absence from his position as deputy state health officer, and will enter at once on his new duties as organizer and director of the social hygiene department of the state.——Dr. Chester M. Echols was elected president, Dr. William F. Wegge, vice president, and Dr. Oscar Lotz, secretary, all of Milwaukee, of the medical staff of Emergency Hospital, Milwaukee, January 1.——Dr. William A. Prouty, Burlington, is reported to be seriously ill in a hospital at Jacksonville, Fla.——Dr. George F. Hilton, Sturgeon Bay, was seriously burned about the face and hands by a gas explosion in his furnace recently.

CANADA

Personal.—Major Brefney R. O'Reilly, M.D., Toronto, chief medical officer of the Royal Air Force in Canada, has been made a member of the Order of the British Empire.——Col. Herbert S. Birkett, Montreal, who recently returned overseas to take up a short course of duties with the Medical Service, has been appointed chief assistant to the director of medical services in the Canadian Army.——Dr. Henry Crassweller, Windsor, Ont., has returned after three years' service overseas. He was part of the time a prisoner in Cologne and Hanover, and for a time worked in a German hospital at Lecateau.——Major Samuel Harvey McCoy, Toronto, who has done excellent work in various capacities in England, is reported ill.

Board of Health on Influenza.—The board of health of Ontario, with a view of learning the experience of provincial and state medical officers of health in influenza, addressed the following letter of inquiry: "Does your province (or state) require the reporting, placarding, and quarantine of influenza, and, if so, do you consider placarding and quarantine of such, practicable?" Replies were received from nine officers of health in Canada and from forty-three state officers of health. Four of the provinces of Canada found placarding and quarantine were impracticable. One states that modified quarantine was working well; another, that the law was not

well obeyed; a third, that it was almost impossible in rural places; a fourth, that there were many infractions but of good effect; a single officer declared it of good effect. Of the reports from the United States, twenty-nine out of forty-three, or 67 per cent., stated that placarding and quarantine in influenza were impracticable. Of the remainder of the replies nine report the law practicable, and five qualified their statements as follows: "seems to be of value"; "enforcement depends on local sentiment"; "law fairly well obeyed"; "beneficial"; "believe quarantine should be included." Out of fifty-two officers of health, state and provincial, nine frankly state, as a result of their experience, that placarding and quarantine are practicable, ten qualify their approval and thirty-three frankly state that these measures are impracticable.

GENERAL

Lieutenant-Colonel de Tarnowsky to Head Relief Work in Serbia.—Lieut.-Col. George de Tarnowsky, Chicago, has been given charge of medical relief work in Serbia with a staff of officers selected by him from the Medical Corps of the United States Army. Because of a shortage of physicians the relief work in Serbia will be of a medical character differing in this respect from similar work in Roumania.

Rural Hygiene.—Representatives of the state boards of health of Indiana, Michigan, Illinois, New York, Massachusetts, North Carolina, South Carolina, Minnesota, Kansas and Washington appeared before the committee on agriculture of the House of Representative in Washington, January 16, to present arguments in favor of the bill pending before the house, which contains provisions for a program to benefit rural health, involving an appropriation of $1,000,000.

Health Sunday.—Surg.-Gen. Rupert Blue, U. S. P. H. S., who appealed through a proclamation to clergymen of the country to set aside February 9 to preach sermons emphasizing the responsibility of the nation to protect the returned soldiers and sailors and communities at large, requesting also that there be inaugurated vigorous measures for the combating of venereal diseases, has announced that Health Sunday has been postponed from February 9 to 23, so as not to conflict with the Theodore Roosevelt memorial services, arranged for the former date.

Medical Relief in the Balkan States.—Major Roger D. Perkins, Cleveland, who has been in Paris for some time as medical liaison officer for the National Research Council, has joined the Balkan commission as director of public health and sanitation. He will make a tour of inspection through the Balkan states to advise with the various Balkan governments as to needs in this field. It will be remembered that Major Perkins accompanied the original Red Cross commission for relief in Roumania. A description of the work of the first commission appears in an article published in THE JOURNAL by Lieut.-Col. H. G. Wells and Major R. D. Perkins, March 16, 1918.

Commission to Roumania.—Lieut.-Col. H. Gideon Wells, Chicago, left the United States early in November as a member of the Balkan commission of the American Red Cross. The armistice and the cessation of hostilities made necessary a change in plans. He has now been detached from the position in connection with the commission to the Balkan states, and has been appointed commissioner representing the Red Cross in Roumania. He has organized a commission of sixty-eight persons to undertake general relief work instead of medical relief work alone, as there is a well developed medical profession in Roumania. The medical men of the party, aside from Lieutenant-Colonel Wells, are Lieut.-Col. Morley D. McNeal of Johns Hopkins, Baltimore, and Major J. Breckenridge Bayne, Washington, D. C. The latter was two years in Roumania, kept there practically as a prisoner during the German occupation, although allowed to do medical work among the Roumanian people. The work promises to be both interesting and practical because it is reported the Bolsheviki are making strong efforts to secure a foothold in Roumania, working from both Russia and Hungary. Abundant medical supplies will be taken to equip Roumanian physicians and hospitals.

FOREIGN

Spanish Hospital at Rome.—The two sons of a Spaniard, Sr. J. Taya, have given the Italian Red Cross $100,000 to found a fifty bed hospital at Rome, to be used for sick and wounded soldiers at first. Two years after the conclusion of peace, half the beds are to be reserved for the members of the Spanish colony in Italy.

Influenza in Pago Pago.—From Pago Pago, American Samoa, January 6, it was reported that communication between the island of American Samoa and Western Samoa was still cut off on account of the influenza epidemic. It was said that in Western Samoa one third of the population had succumbed to the disease.

Casualties in the Profession in Germany.—The *Nederlandsch Tijdschrift* cites some figures from Germany to the effect that the 1,200 casualty lists published by the German army and navy contained the names of 1,158 physicians reported as slightly wounded, 332 severely wounded, 663 killed, 422 as succumbing to disease, 212 taken prisoner, seventy-two missing and one killed by gas.

The University of Ghent.—Dr. Léon Frédericq was professor of physiology at Liége and later at Ghent. He was imprisoned by the Germans because he refused to continue his courses in Flemish after the Germans had taken the city and were trying to remodel the university to be a Flemish institution. The government of Belgium has now appointed Professor Frédericq lord rector of the university.

Personal.—Prof. H. Burger of Amsterdam has been elected corresponding member of the laryngologic section of the Royal Society of Medicine at London.——Prof. J. Rotgans of Amsterdam was given a sum of money, collected by subscription, on the recent twenty-fifth anniversity of his entering on the practice of medicine. He has donated the sum as the nucleus of a fund for cancer research in the Netherlands.

Italian Congress of Orthopedists.—The ninth annual meeting of the Italian Società di Ortopedia, held at Milan in November, discussed the principles and practice of plastic motor surgery and expatiated on the importance of this kinematization of prostheses. The meeting adopted a resolution calling on the authorities to express in some way to G. Vanghetti, who was the originator of the idea of plastic motor operations and its apostle, the gratitude of science and of the Italian nation.

Netherlands Ambulance in Germany.—The Netherlands ambulance at Celle in Hanover continued for a long time after the signing of the armistice to have wounded soldiers sent there. The personnel has not met with any difficulties on account of the change of government. If possible, the *Nederlandsch Tijdschrift* remarks, they have been given greater appreciation. At the same time it has been planned to return home in December as the cases are now becoming medical, while the ambulance is equipped only for surgical work.

Proposed Medical School at Khartoum.—The *British Medical Journal* states that the Gordon Memorial College, now in its seventeenth year at Khartoum, is doing fine work in spite of the European War cutting into its personnel. It is now proposed to found a medical school in connection as a memorial to Kitchener. About $45,000 has already been collected for the purpose in the Sudan, mainly by subscriptions from natives. Cerebrospinal meningitis was present in the Sudan last year. It is stated that owing to the difficulty of keeping guinea-pigs alive there, the Wassermann test could seldom be applied, but this difficulty has at last been overcome.

Deaths in the Profession Abroad.—Dr. **George Ogilvie**, on the staff of the Hospital for Epilepsy and Paralysis at London and writer on subjects connected with these specialties, F.R.C.P., senior physician to the French Hospital, aged 66. He had been decorated by the French, by the king of Italy and by the king of Portugal.——Dr. **Leonard G. Guthrie**, an eminent neurologist of London.—Dr. **O. Feijão**, professor of surgery at the University of Lisbon.—Dr. **S. Esquerdo**, director for forty years of the Carabanchel insane asylum, near Madrid, Spain.——Major **Miles Charles Cariston Seton**, Melbourne, Australia, M.B., C.M., 1900, University of Edinburgh, F.R.C.S., Edinburgh, 1908; who had served in South Africa in 1901; was shot and killed at the house of his cousin in England, January 13, by Lieut.-Col. Norman Cecil Rutherford, R. A. M. C. A verdict of willful murder against Colonel Rutherford was brought by the coroner's jury, January 24.

CORRECTION

Statistics of Baltimore.—We are informed by Dr. William H. Davis, chief statistician of the Bureau of the Census, relative to an item which apeared in THE JOURNAL, January 18, that the census department did not err in its statement as to the death rate of Baltimore, but that an error had occurred in the compilation of statistics in Baltimore. Dr. William T. Howard, Jr., assistant commissioner of health, has notified the department of the census that the error in compiling the statistics was made in the Baltimore Health Department.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Child Welfare Week at Buenos Aires.—Under the auspices of the Club de Madres a child welfare exhibition was opened at Buenos Aires in November. It is the second child welfare week that has been organized there.

Typhus at Santiago, Peru.—The *Revista de Beneficencia Publica* comments on the losses in the profession from the epidemic of typhus which is prevailing at present at Santiago and other cities of the republic. Dr. M. Guzman, intern at the Hospital de San Vicente, and Dr. C. Manterola, assistant in the Public Health Service, were among the victims in November, with four of the leading hospital nurses.

Lepers in Colombia.—The *Semana Medica* quotes from a recent official report at Bogotá, Colombia, to the effect that there is great room for improvement in the management of leprosy suspects. They are all conveyed to a detention laboratory where they are kept until the examiner comes, which is usually on Mondays. The diseased and the healthy are held here until the day of examination, as the authorities convey there, sometimes forcibly, any one who has been denounced as having leprosy. He may be taken by force from his home and without food or bed in which he can sleep, until the examiner finds it convenient to arrive. The appeal is made for a personal examination at the home, before sending the suspect to the detention laboratory for more thorough examination.

Compulsory Notification of Tuberculosis in Peru.—The Academia Nacional de Medicina at Lima has been discussing recently the feasibility of compulsory notification of tuberculosis. The general consensus of opinion seemed to be that a limited notification is practicable and useful, along the lines of the restricted compulsory declaration adopted in S. Paulo, Brazil. This provides for compulsory notification in all cases of deaths from this disease and when the sputum contains the specific bacilli and the subjects are in the following classes: (*a*) reside in neighboring house; (*b*) work in public offices, factories, and similar establishments; (*c*) are employed in eating houses, hotels, confectionery stores, cafés, groceries, etc.; (*d*) are employed as wetnurse, domestic servant, cook, laundress, scrubwoman; (*e*) are attending or teaching school. The academy voted in favor of the S. Paulo restricted compulsory notification. The discussion is given in full in the *Reforma Medica* of Lima.

BUENOS AIRES LETTER

BUENOS AIRES, Dec. 15, 1918.

Epidemics of Dysentery

The epidemics of dysentery at La Rioja and Catamarca have spread into the country. This renders much more difficult the campaign against this disease as the districts involved are poor with scanty resources.

Influenza in Paraguay

The influenza which spread from Buenos Aires to Paraguay acquired greater virulence there. The alarmed inhabitants believed that bubonic plague was responsible for the cases of death, but this assumption was disproved by Dr. Migone. Dr. Capurro, president of the Departamento de Higiene Argentino, has sent a commission to Paraguay to study the disease.

Entrance Examination for the Medical School

The notorious inadequacy of the preparation in physical and natural sciences has compelled the Facultad de Medicina to insist on an entrance examination. The diploma of the six years' course of studies at the Colegio Nacional Central will admit to the medical school without examination. Those completing the five year course will be obliged to undergo a written and an oral examination on botany, zoology, physics and chemistry.

Medical Botany to Be Dropped

The suppression of the course on medical botany seems to be imminent. The officials of the Facultad de Medicina are soon to decide the matter. In the meanwhile the first year students have decided not to enter for examination in this branch.

Medical School at Rosario

A new medical school is on the point of being inaugurated at Rosario. The building to house it is nearly completed, connected with the Hospital Centenario, and the courses are to be inaugurated in 1919.

Personal

Dr. B. A. Houssay, on the invitation of the Circulo Medico of Rosario, delivered an address before this society, November 20, on "Physiology of the Pituitary Body."

Dr. A. Bachsmann has been appointed chief of the section on entomology and medical zoology in the Departamento Nacional de Higiene.

PARIS LETTER

PARIS, Dec. 19, 1918.

Disinfection of Wounds by Antiseptic Vapors

Dr. Lavenant of Paris recently reported to the Société de médecine de Paris a new method of disinfecting wounds by means of antiseptic vapors, first proposed by Dr. Le Faguays of La Roche-sur-Yon and which has yielded excellent results. The principle of the method is the disinfection of a wound by means of a current of gas charged with an antiseptic vapor. This current of gas may be ordinary air charged with an ether vapor to which a volatile antiseptic is added, such as phenol, camphor, oil of geranium. In some cases Le Faguays used air mixed with oxygen (half its volume) and saturated with ether vapor. A current of air is forced into a flask containing ether to which a volatile antiseptic has been added. Through the cork in the flask pass two tubes, one to admit the current of air, the other for the discharge of the medicated ether vapor. A Nelaton sound is passed down into the depths of the wound and is connected with the flask by a rubber tube. The antiseptic vapor is thus brought into contact with the wound surface. The treatment is continuous, day and night. Results are obtained quickly. The infected wound is usually cleaned up in twenty-four or forty-eight hours at the most, even when the infection has resisted the usual methods of treatment of infected wounds. The time required to produce similar results with other methods of treatment is about ten days. The expense of this treatment is slight and the patient is not being worn out and discommoded by having his bed saturated with irrigating fluid, as is the case when continuous flushing is employed.

Light Surgical Automobile Unit

At a recent meeting of the Société de chirurgie de Paris, Dr. Guillaume-Louis of Tours described a sort of flying surgical automobile unit intended to give service to wounded soldiers who are not transportable (such as cases of wounds of abdomen, thorax, head or extremities) during troop movements. The plan was first proposed by Professor Jeanbrau. The unit consists of two motor lorries convoying two two-wheeled carts and two small trucks. These light vehicles can travel over all roads without getting stuck. The lorries carry an operating room. On one of the two carts is placed the roentgenographic apparatus and on the other the sterilizing outfit. One of the small trucks contains the remainder of the surgical apparatus (instruments, laboratory equipment, etc.) and the material to form the closed-in archways between the various tents; the other truck carries the clothing of the personnel and can be used also to carry provisions for the group. This unit does not carry any tents or beds which could be used for hospital purposes, because these would add too much weight to the outfit, and it is preferable therefore, to depend on the front line for this hospitalization.

The Mentality of the Female Worker

At a recent meeting of the Académie des Sciences, Dr. Amar showed that sustained mental effort, concentration, in short, the will power of women workers is manifestly inferior to that of men workers. This is notably manifested in the yield or production resulting from the lesser occupations, but of a more or less mental nature, that is, requiring some "brain" work, such as adding columns of figures, copying letters, counting and wrapping pills or pins, sorting pens and verifying the good quality of the point. Amar has determined, with an electrical contrivance, that a sort of auditory or visual rhythm promotes the cerebral activity of women. He has reached the conclusion that the motor reactions of women always obey an auditory or visual rhythm. In the performance of all delicate work, work necessitating rapid movement, there exists for the ear as well as for the eye a proper cadence which lessens fatigue and increases production. Continuous labor, even with a perfect cadence, demands constant attention, with the result, so far as women are concerned, that respiration becomes modified and fatigue occurs earlier; even anemia and neurasthenia may result. All things being equal, the sensibilities of women are more affected by outside influences. Hence,

women are emotional, full of sympathy—and likewise subject to antipathies—and these characteristics rule the mental processes of the woman worker.

Establishment of a Social Hygiene Dispensary

The general council of the department of the Seine has decided to establish a social hygiene and anti-tuberculosis dispensary to be known as the "Office publique d'hygiène sociale."

War Welfare Work

The "Secours de guerre" recently held a general meeting at which the secretary-general explained the activities of this group of workers, which are directed toward assisting the soldiers on furlough whose homes are in the invaded parts of France or who are without family, as also all refugees and repatriates. Since 1914, the Secours de guerre has hospitalized 1,697,884 refugees; during the time of the German drive on the Chemin des Dames, during twelve nights, there were sheltered, fed and clothed and sent inland and to the south 35,000 persons. This organization will henceforth also give assistance to civil prisoners and to soldiers mustered out of service in the devastated regions.

Nurse Receives Decoration of Legion of Honor

Mme. Marguerite Dislère, a nurse serving with the ambulance 9/10, has been made a chevalier of the Legion of Honor, with the following citation: "A nurse of the first order, of very high moral quality, accomplished in her profession and most zealous in her work. She rendered priceless service during the campaign in Morocco and during the earthquake catastrophe at Messina. At the front since Aug. 1, 1914, at Verdun, where she contracted typhoid caring for the sick, and where she was exposed to several bombardments; at Vadelincourt, at Ressons-sur-Matz; at Noyon, in the Somme, the Oise and the Vosges districts, she always gave proof, even under enemy fire, of the greatest courage and utmost contempt for danger, devoting herself with indefatigable energy to extending motherly care to the sick and wounded, furnishing an example of limitless devotion. Once wounded. Already cited twice in army orders."

Bread Ration for Pregnant Women

M. Raoul Méquillet, deputy, asked the minister of agriculture and food commissioner what the bread ration of pregnant and nursing women is at present. He received the following reply: Pregnant women, who are employed, are classed in the category T of the individual food card (daily bread ration of 500 gm.), as soon as they register themselves with the mayor and during a period of six months on condition that this registration is accompanied by a medical certificate setting forth their condition. Following the confinement, the classification in Class T will be continued for fifteen months, providing that the mother nurses the infant herself. Besides this, a daily bread ration of 100 gm. is allowed for the infant from the date of birth.

Personal

At the last meeting of the Académie de médecine, Prof. A. Laveran, a member of the academy since 1893, was elected vice president for 1919, automatically becoming president in 1920.

Deaths

Dr. Tanton, consulting surgeon of the Fourth Army, formerly a member of the faculty of l'Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce, died in his hospital at Mont-Frenet.——Dr. Vigouroux, physician in chief of the hospitals for the insane in the department of the Seine.

Marriages

JAY MELANCTHON KILBORNE, Capt., M. C., U. S. Army, to Miss Lavisa Pinkley, both of Sioux City, Iowa, at Des Moines, Iowa, January 18.

CLAUDE ALLEN THOMPSON, Major, M. C., U. S. Army, to Miss Alva Coulter, January 16, both of Muskogee, Okla.

GEORGE ASBURY CONREY, Lieut., M. C., U. S. Army, to Miss Cornelia M. Keating, both of Chicago, January 18.

ADDISON EUGENE ELLIOTT, El Centro, Calif., to DR. FRANCES PULLEN CHAPMAN of Oak Park, Ill., January 11.

HARRY J. ARNOLD to Miss Martha Bean, both of Columbus, Neb., January 11.

Deaths

Thomas Francis Harrington ✠ Boston; Harvard Medical School, 1888; aged 52; a specialist on internal medicine; a member of the American Association for the Study and Prevention of Tuberculosis, and American Association of Life Insurance Examiners; formerly visiting and later consulting physician to St. John's Hospital, Lowell, Mass.; deputy commissioner of the state board of labor and industry since 1915; for three years chairman of the board of health of Lowell; director of the school of hygiene in the Boston public schools from 1907 to 1915; instructor in the school for teachers at Harvard and the Massachusetts Institute of Technology; physician in chief of St. Elizabeth's Hospital; originator of "health days" and author of the History of Harvard Medical School; an internist of high repute; lieutenant-colonel, M. C., Mass. V. M.; died at his home in Boston, January 19, from ptomain poisoning.

John Henry Lowman ✠ Cleveland; College of Physicians and Surgeons in the City of New York, 1877; aged 68; professor of clinical medicine and medical ethics in Western Reserve University, Cleveland; physician to Lakeside Hospital; consulting physician to Charity, City, Lutheran, and St. John's hospitals; director of Municipal Tuberculosis Dispensary; a member of the American Laryngological Association; who headed the first American Red Cross tuberculosis mission to Italy; died in New York City, January 23.

Urban S. Bird ✠ **Lieut., M. C., U. S. Army,** Tampa, Fla.; Tulane University, New Orleans, 1895; aged 52; a specialist on diseases of the eye, ear, nose and throat; a member of the American Laryngological, Rhinological and Otological Society; for several terms city physician of Tampa; surgeon of U. S. Volunteers during the war with Spain, with service in Cuba; who was honorably discharged from the Army, December 5; died, about January 11.

Newcomb S. Smith, Rapid City, S. D.; College of Physicians and Surgeons, Koekuk, Iowa, 1864; aged 79; hospital steward on the Thirty-Second (Iowa) Volunteer Infantry, afterward assistant surgeon of the Thirty-Fifth (Iowa) Volunteer Infantry in the Civil War, and later a surgeon in the regular establishment with station at Fort Randall, Okla.; died in the Soldier's Home, Marshalltown, Iowa, January 9, from carcinoma of the throat.

William Bird Van Lennep, Philadelphia; Hahnemann Medical College, Philadelphia, 1880; aged 65; professor of surgery in his alma mater since 1884, and for several years dean of the faculty; senior surgeon and consulting surgeon to several hospitals in Philadelphia and Camden, N. J.; chief surgeon of the Hahnemann Hospital; a specialist in abdominal surgery; died at his home, January 9, from heart disease.

Thomas Kelley ✠ New York City and Deal, N. J.; New York University, New York City, 1884; aged 55; a member of the New York Academy of Medicine; attending physician to St. Vincent's and St. Laurence hospitals, and the Catholic Institute for the Blind, and Seton Hospital, Spuyten Duyvil; died suddenly from cerebral hemorrhage in his automobile while making a professional call, January 17.

Gilbert Birdsall, North Brookfield, N. Y.; University of Buffalo, N. Y., 1863; aged 89; at one time a member of the Medical Society of the State of New York; hospital steward during the Civil War; for four years postmaster of Oneida, for sixteen years justice of the peace, and for fifteen years president of the board of education; died at his home, January 16, from acute indigestion.

Otto Louis Winter ✠ **Lieut., M. C., U. S. Army,** St. Paul; University of Minnesota, Minneapolis, 1915; aged 30; a specialist in orthopedic surgery; whose last station was chief of the orthopedic service in the reconstruction hospital, Fort Snelling, Minn.; died at the home of his father in River Falls, Wis., January 2, from pneumonia following influenza.

Henry Virgil Bogue ✠ **Asst. Surg. (j. g.), U. S. N. R. F.,** Los Angeles; Baltimore Medical College, 1909; aged 34; a specialist on diseases of the eye, ear, nose and throat; staff surgeon to the Los Angeles County Hospital; on duty at the Mare Island Naval Hospital, Vallejo, Calif.; died in that institution, January 9, from pneumonia following influenza.

William Sutherland Connery ✠ Saginaw, Mich.; University of Michigan, Ann Arbor, 1889; aged 50; formerly president of the Saginaw County Medical Society; surgeon to the Saginaw and St. Mary's hospitals; formerly coroner of Saginaw County; a veteran of the war with Spain; died at his home, December 23, from cirrhosis of the liver.

Nathaniel Clark Morse ✠ Eldora, Iowa; Cincinnati College of Medicine and Surgery, 1877; aged 62; district surgeon of the Chicago and Northwestern Railway; surgeon in chief of the Emergency Hospital; formerly president of the State Society of Railway Surgeons, and vice president of the Pan-American Medical Congress; a member of the Western Surgical Association; died at his home, January 18, from heart disease.

Bertram Hughey Landes, Logansport, Ind.; Indiana University, Bloomington and Indianapolis, 1911; aged 32; a member of the Indiana State Medical Association; a member of the staff of the Longcliff Asylum, Logansport; died in that institution, January 13, from pneumonia following influenza.

Allison R. Stealy ✠ Charlotte, Mich.; Rush Medical College, 1886; aged 62; formerly president, secretary and treasurer of the Eaton County (Mich.) Medical Society; for several years health officer of Charlotte, and a member of the local board of education; died at his home, January 9.

Bradford Allen Booth ✠ Pittsburgh; University of Pittsburgh, 1901; aged 40; chief medical inspector and diagnostician of the department of health of Pittsburgh, and visiting physician to the Municipal Hospital for Contagious Disease; died at his home, January 13, from heart disease.

Frank Walton Mitchell, Bakersfield, Calif.; College of Physicians and Surgeons in the City of New York, 1880; a member of the Medical Society of the State of California; died at his home, January 12, from cerebral hemorrhage.

William Hayden Campbell, Santa Monica, Calif.; Gross Medical College, Denver, 1890; aged 70; at one time a member of the Medical Society of the State of California, and Montana State Medical Association; died, January 8, at his home, near Los Angeles.

Samuel Solovei ✠ **Lieut., M. C., U. S. Army,** Brooklyn; College of Physicians and Surgeons in the City of New York, 1917; aged 25; while on his second trip to France was taken ill on the steamer and died at a base hospital in Brest, October 15, from pneumonia.

Lewis Wesley Kitchens ✠ **Lieut., M. C., U. S. Army,** Senatobia, Miss.; University of Tennessee, Nashville, 1914; aged 31; on duty with the American Expeditionary Forces in France; died in Calais, France, October 30, from pneumonia following influenza.

Horace Cortelyou Cory ✠ Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1898; aged 52; a specialist in surgery; and a member of the staff of St. Michael's Hospital, Newark; died at Saratoga Springs, N. Y., January 15.

Nathaniel H. Saxman, Philadelphia; University of Pennsylvania, Philadelphia, 1890; aged 53; formerly a member of the Medical Society of the State of Pennsylvania; died in the Jewish Hospital, Philadelphia, January 8.

William Francis Rafferty ✠ **Lieut., M. C., U. S. Army,** Rensselaer, N. Y.; Albany (N. Y.) Medical College, 1911; aged 31; for two terms coroner of Rensselaer County; died suddenly from heart disease while making a professional call, January 15.

Abraham Sachs, San Antonio, Texas; Miami Medical College, Cincinnati, 1900; aged 46; a member of the State Medical Association of Texas; and a specialist on diseases of the eye, ear, nose and throat; died at his home, January 19.

Carl Adolph Breitling ✠ **Lieut., M. C., U. S. Army,** Brooklyn; Northwestern University Medical School, 1913; aged 32; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died at Fort Oglethorpe, November 5, from bronchopneumonia.

Allen Lewis Borden, Gowanda, N. Y.; University of Michigan, Ann Arbor, 1896; aged 46; a member of the Buffalo Academy of Medicine, and health officer of Gowanda and Cattaraugus County; died at his home, January 10.

John E. Wade, Brooklyn; New York University, New York City, 1871; aged 71; a member of the Medical Society of the State of New York; died at his home, January 10.

Died in the Service
IN FRANCE
LIEUT. SIDNEY C. VERMILYEA, M.C.
U. S. ARMY, 1887-1918
(*See The Journal, Jan. 18, p. 211*)

James Harvey Cole ✠ Council Bluffs, Iowa; University of Illinois, Chicago, 1892; aged 48; vice president of the Harle-Hass Drug Company, Council Bluffs; who was a patient in a private hospital in Des Moines, Iowa; died there, December 10, from a nervous breakdown.

Charles Anthony Saxon, Clinton, S. C.; Jefferson Medical College, 1856; aged over 80; formerly a member of the South Carolina Medical Association; died at the home of his daughter-in-law in Laurens, S. C., January 5.

Demsey Franklin Smith, Whitesburg, Ky.; Hospital College of Medicine, Louisville, Ky., 1907; aged 42; a member of the Kentucky State Medical Association; died at his home, October 21, from pneumonia following influenza.

Glennie H. Rutledge, Afton, Okla.; American Medical College, St. Louis, 1907; aged 36; a member of the Oklahoma State Medical Association; died at his home, November 2, from pneumonia following influenza.

N. E. Palmer, Dundee, Minn. (license, Iowa, years of practice, 1886); aged 84; for several years a druggist at Kirkman and Botna, Iowa; died at the home of his son in Dundee, December 9.

Sidney Bennett Rolison, Hesperia, Mich.; University of Michigan, Ann Arbor, 1881; aged 70; a member of the Michigan State Medical Society; died at his home, January 11.

Samuel S. Spicer, Grinnell, Iowa; Washington University, St. Louis, 1873; aged 66; at one time a member of the Iowa State Medical Society; died at his home, January 11, from heart disease.

John G. Halloway, Ottumwa, Iowa (license, Iowa, years of practice, 1887); aged 79; a veteran of the Civil War; also a clergyman; died at his home, January 4, from cerebral hemorrhage.

James F. White, Richview, Ill.; Medical College of Ohio, Cincinnati, 1874; aged 73; a member of the Illinois State Medical Society; died at his home, October 20, from influenza.

Edward T. Gauvreau, Superior, Wis. (license, Wisconsin, 1899); aged 75; a practitioner for forty-six years; for several years health officer of Superior; died at his home, January 13.

Phillipe Sharples Hall, Philadelphia; Hahnemann Medical College, Philadelphia, 1891; aged 52; formerly professor of pathology in his alma mater; died at his home, January 16.

Jacob Loy, Cedar Rapids, Iowa; Eclectic Medical Institute, Cincinnati, 1853; aged 91; a veteran of the Civil War; died at the home of his daughter in Cedar Rapids, January 9.

John C. O'Brien ✠ Elmira, N. Y.; Western Reserve University, Cleveland, 1888; aged 68; a member of the Elmira Academy of Medicine; died at his home, about January 9.

John D. Masengill, Blountville, Tenn.; College of Physicians and Surgeons, Baltimore, 1874; aged 74; at one time a member of the Tennessee State Medical Association; a Confederate veteran; died at his home, January 9.

John Henry Reesor, Louisville, formerly Stithton, Ky.; Louisville (Ky.) Medical College, 1885; aged 60; a member of the Kentucky State Medical Association; died at his home, January 1, from pulmonary abscess.

William Patrick Wilson, Hartford, Conn.; College of Physicians and Surgeons, Baltimore, 1890; aged 61; a member of the Connecticut State Medical Society; died at his home, December 19, from heart disease.

William Henry Sheldon, Middlebury, Vt.; Bellevue Hospital Medical College, 1880; aged 63; also a druggist; died at his home, January 12, from disease of the throat.

William P. C. Schunzel, Chicago; Hahnemann Medical College, Chicago, 1917; aged 33; died at his home, January 20, from a ruptured aneurysm of the aorta.

Martin Vaughan, Hammond, Ind. (license, Indiana, 1898); aged 82; died in Augustana Hospital, Chicago, January 10, from uremia, after a surgical operation.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

B. IODINE AND B. OLEUM IODINE

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report on "B. Iodine" and "B. Oleum Iodine" together with the reply submitted by the manufacturer and a discussion thereon by the referee in charge of the preparations.

W. A. PUCKNER, Secretary.

Specimens of B. Iodine and B. Oleum Iodine (B. Iodine Chemical Company) and an advertising pamphlet were sent to the Council by John Bohlander, A.M., M.D., with the declaration:

"Well knowing the value of Iodin in surgical operations and dressings, prompted me for the benefit of my fellow physicians as well as myself, and for Humanity's sake, to make Iodin my master-piece in chemistry.

"After several years of diligent work in my private laboratory I succeeded in discovering a new product of Iodin—Nitrogen, hydrate of Iodin."

While "B. Iodine" is said to be nitrogen hydrate of iodin and "B. Oleum Iodine" a 5 per cent. solution thereof, the examination made by Prof. A. H. Clark of the University of Illinois, School of Pharmacy (working in the A. M. A. Chemical Laboratory), indicates that the first is a simple mixture of iodin and ammonium iodid, and the second a solution of iodin in liquid petrolatum. The Council adopted the report of the A. M. A. Chemical Laboratory (which appears below) and declared B. Iodine and B. Oleum Iodine inadmissible to New and Nonofficial Remedies because:

1. The composition is incorrectly declared. B. Iodine is not a newly discovered iodin compound, "Nitrogen Hydrate of Iodine," but a mixture of iodin and ammonium iodid. B. Oleum Iodine is not a 5 per cent. solution of B. Iodine as suggested by the statement on the label and in the advertising, but a solution of iodin in liquid petrolatum containing about 0.85 per cent. of iodin.

2. Since B. Iodine is a mixture of iodin and ammonium iodid, its solution in water will have the properties of other solutions of iodin made by the aid of iodid, such as a dilution of tincture of iodin or of compound solution of iodin (Lugol's solution). Hence, the therapeutic claim that B. Iodine "being of a colloidial nature has the advantage of being more readily absorbed and taken up by all cellular structure, thus getting a perfect cellular medication of Iodine," is unwarranted.

3. The names "B. Iodine" and "B. Oleum Iodine" are not descriptive of the pharmaceutical mixtures to which they are applied.

4. B. Iodine and B. Oleum Iodine are unessential modifications of established articles. B. Iodine has no advantage over tincture of iodin or compound solution of iodin. (As more convenient of transportation, the Medical Department of the U. S. Army supplies its field hospitals with a mixture of iodin and iodid ready for solution in water, either in tablet form or in powdered form in tubes.) Solutions of iodin in liquid petrolatum may be readily prepared (Reports Council Pharm. and Chem., 1917, p. 88).

[CONTRIBUTION FROM THE A. M. A. CHEMICAL LABORATORY]

B. IODINE PRODUCTS

A. H. Clark, Ph.G., B.S.

"B. Iodine" products are marketed by the B. Iodine Chemical Company, Cincinnati, Ohio; John Bohlander, A M., M.D., is said to be the discoverer. They consist of "B. Iodine," "B. Oleum Iodine," and "B. Aqua Iodine." B. Iodine and B. Oleum Iodine were submitted to the Council.

In a circular submitted by the B. Iodine Chemical Company, B. Iodine is said to be "Nitrogen Hydrate of Iodin." It is claimed that "coming in contact with water, H_2O, a chemical change takes place forming Hydro Oxid of Iodin, the Nitrogen of the Nitrogen Hydrate of Iodin escaping, the balance taking up one of oxygen of the water. Its companion, the H_2, escaping at the same time with the Nitrogen then combining with the remainder of the water to form the solution of Hydrogen Oxid of Iodin; so you can readily see that you really have a pure water of Iodin, nothing but the H, the O and the I."

B. IODINE

According to the circular, B. Iodine is soluble in alcohol, chloroform, and ether. Also it:

"Has odor, taste, melting and boiling point, same as regular Iodin, has a great affinity for water and will respond to all the tests of Iodin. Appears in a Bluish Black Granulated mass or powder. When heated in vaporating dish will throw off large purple volumes of Iodin leaving a slight white crystaline precipitate, which on continuous heating will entirely disappear. With careful manipulation you can get prismatic needle point like crystals, looking like spores of glass, these dissolving in water will yield pure Iodin coloring the water Iodin.

"PHARMACOLOGIC, THERAPEUTICAL AND PHYSIOLOGICAL ACTION: Same as Iodin, being of a colloidal nature has the advantage of being more readily absorbed and taken up by all cellular structure, thus getting a perfect cellular medication of Iodin."

A sample of B. Iodine, marked "Nitrogen Hydrate of Iodin" was submitted by the manufacturers and this sample was examined.

B. Iodine was found to be a granular powder, almost black with a purple cast. It has an odor of iodin and dissolves in water readily. It is also quite soluble in alcohol, but not entirely soluble in chloroform and ether. Ether quickly dissolves iodin from B. Iodine leaving a residue of a white granular substance. Chloroform acts the same as ether except that the iodin is dissolved out with some difficulty. On heating B. Iodine, vapors of iodin escape. If the heating is done on a water bath, a residue of a white granular substance, subsequently identified as ammonium iodid, remains. If heated in a bunsen flame, no residue remains. These tests all indicate that iodin is held in the form of a simple mixture.

Ammonia: B. Iodine when mixed with an excess of sodium hydroxid and warmed, evolves ammonia.

Iodine: 0.1567 gm. B. Iodine dissolved in water required 5.88 c.c. tenth-normal sodium thiosulphate solution indicating 48.28 per cent. iodin. 0.3721 gm. B. Iodine required 14.18 c.c. tenth-normal sodium thiosulphate solution indicating 48.37 per cent. iodin. The average is 48.33 per cent. iodin.

Ammonium Iodide: 0.3453 gm. of the residue after heating B. Iodine on a water bath until all iodin had volatilized was dissolved in water, acidulated with phosphoric acid, and hydrogen dioxid solution added. The liberated iodin was extracted with chloroform and titrated with tenth-normal sodium thiosulphate. 23.78 c.c. were required indicating 0.3447 gm., or 99.83 per cent., ammonium iodid.

A mixture of 5 gm. iodin and 5 gm. ammonium iodid has the properties of B. Iodine mentioned above.

The conclusion is that B. Iodine is essentially a mixture of iodin and ammonium iodid in equal parts, the two substances being finely powdered and intimately mixed.

B. OLEUM IODINE

The following regarding B. Oleum Iodine is quoted from the circular submitted:

"B. OLEUM IODINE: Iodine soluble in mineral oil 5 and 10% for Nasel, Pharyngeal, Laryngeal, Bronchial, Rectal, etc., and all meucoid affections and abnormal conditions of the mucous membrane."

A sample of B. Oleum Iodine was submitted by the manufacturer and examined. The label on the bottle states that it is 5 per cent. B. Oleum Iodine in mineral oil. This sample has the characteristics of a solution of iodin in liquid petrolatum. It is oily and has the characteristic violet color.

Ammonia: B. Oleum Iodine, since it is presumed to be a solution of B. Iodine, was examined for ammonium compounds. A small quantity was mixed with an equal volume of strong sodium hydroxid solution and heated. No ammonia was evolved. A few crystals of ammonium chlorid were added to a little of B. Oleum Iodine and treated as above. Ammonia was readily detected.

Iodine: 5.255 gm. B. Oleum Iodine was dissolved in chloroform and placed in a separator. A solution of potassium iodid was added and the iodin titrated with tenth-normal sodium thiosulphate solution. It required 3.5 c.c. indicating 0.85 per cent. iodin.

The conclusion is that B. Oleum Iodine is a simple solution of iodin in liquid petrolatum to the extent of 0.85 per cent.

and not 5 per cent. as claimed. Furthermore, it is not a solution of B. Iodine since no ammonium compound is present.

The preceding report was sent to the B. Iodine Chemical Company. The following reply was received:

Your letter of the 21st inst., received and contents noted and cannot quite agree with your report.

Reasons why: NH_4I, a Nitro Hydrate Iodide; NH_4I_3, a Nitro Hydrate Iodate; and $NH_4I_2I_3$. Per Iodide, a molecular compound, which I claim, they all being of a NH group, so what can be the objection of Nitrogen Hydrate of Iodine? Of course when your chemist, with the aid of heat, drove off all the Iodine, he naturally brought it back to a NH_4I. There's where he gets the A.M. I claim a molecular compound.

The Oil of Iodine I sent you by mistake was a 1 per cent. and not a 5 per cent. as marked. I claim it is made from the resublimed Iodine in mineral oil and not the B. Iodine. I claim a 5 per cent. has heretofore never been accomplished, so I therefore can claim something new.

Tr. Iodine contains Alcohol and Potash as a base, the alcohol a dehydrater and Potash an escharotic, and all other soluble Iodines like the tincture have a metallic base. Mine has not. My iodine is compatable almost with all the salts, alkaloids, tannates, and even the metals. You can't say that for the tincture or the others. Now why should mine not be superior to others?

Preparations as yet are not on the market and a few pamphlets were printed to meet with the requirements of your rulings and approval and shall be corrected if we only can agree on a proper name as you may suggest.

Yours very truly,

THE B. IODINE CHEMICAL CO.
By John Bohlander, A.M., M.D.

P. S. We are sending you under separate cover another sample of the Oil of Iodine which is a 5 per cent. solution, and allowing for deterioration will test at least four per cent.

The referee in charge of the preparations submitted the above letter to the Council with the following comments:

The principal statements in the letter are essentially erroneous or misleading: Mixtures or double salts of ammonium iodid and iodin were not discovered by Dr. Bohlander, and are nothing new. Watery solutions of iodin by means of an iodid have long been known and used in the form of Lugol's solution.

There is no evidence that ammonium iodid is less irritating than potassium iodid. On the contrary, ammonium salts are generally more irritating than the corresponding potassium salts. B. Iodine is not compatible with alkaloids, but behaves essentially like Lugol's solution. The A. M. A. Chemical Laboratory reports that the new sample of B. Oleum Iodine contains only 1.2 per cent. of free iodin, instead of the claimed amount. It is therefore somewhat weaker than the iodin petrolatum prepared by the A. M. A. Chemical Laboratory (Reports Council Pharm. and Chem., 1917, p. 88).

However good Dr. Bohlander's intentions may be, the statements that he makes about his products are misleading or erroneous, and the products are ineligible for N. N. R.

Correspondence

"A REGISTRATION FEE FOR PHYSICIANS"

To the Editor:—Dr. Blair Kelly's protest (THE JOURNAL, Jan. 25, 1918, p. 298) against the proposition of an annual registration fee for physicians ascribes to me an attitude which is far removed from my thought. One of the responsibilities placed on the director of registration and education in Illinois is the enforcement of the medical practice act. This act represents the cumulative effort of years of work by members of the medical profession. It is an excellent law and is much in advance of any previous similar statute of Illinois. The civil administrative code, which established the department of registration and education, provides that in all professional matters relating to medicine the officers of the department shall be advised by a committee of five physicians, men who are licensed to practice medicine and surgery in all their branches. Under the law no one can be admitted to practice medicine or debarred from it without the recommendation in writing by these guardians of the interests of the medical profession. This legal requirement is an absolute obstacle to any undue assumption of authority by the director. It was while working in hearty cooperation with this committee in an attempt to correct some recognized abuses that the desirability of an annual registration fee for physicians became apparent.

It ought to be clear that it is extremely difficult to administer a law relating to a certain profession without having any means at all of knowing what individuals are entitled to the privileges of that profession and what ones are not. So far as the department of registration and education is concerned, it has no motive and no desire as to medicine except to aid in the advancement of the interests of the profession in Illinois. It seeks only to build more firmly on the substantial foundations which have been laid through many years of efficient endeavor by those local, county, state and national organizations in medicine which have been working steadily toward the improvement of professional conditions.

So far as Dr. Kelly's suggestion of a possible financial motive in urging an annual registration fee is concerned, perhaps it is only necessary for me to say that under the law all funds received by the department must be paid into the state treasury every ten days, that no money is paid out by the treasurer except on a proper voucher approved by the director of the department, the director of finance and the governor, and that no positions of any kind are created except through the Civil Service organization. With these safeguards, no one should fear improper use of funds by a director.

FRANCIS W. SHEPARDSON, Springfield, Ill.
Director of Registration and Education.

ANNUAL REGISTRATION OF PHYSICIANS

To the Editor:—An editorial comment entitled "Annual Registration of Physicians, and a Danger" appeared in THE JOURNAL, Jan. 11, 1918, p. 122. If this matter could be brought to vote among the thousands of reputable physicians in our country, the law would never pass. It is a matter of common knowledge that sons of physicians only seldom study medicine, but are more apt to go into business or law. It is not unreasonable to believe that one cause of this is that fathers do not wish to subject their sons to certain needless and often petty restrictions imposed on members of the profession. It is also well recognized that the tendency of the times is for young men to enter commercial and mechanical fields rather than the study of medicine. True, certain educators may not deplore this fact, feeling that the profession has been overcrowded. There is no danger that it will be overcrowded in the future. The wisdom may be questioned of making laws which will bear on something like 145,000 earnest, conscientious members of a great profession, in order to locate a few rascals. It is well known that our profession does not command the respect of the people in our own country as it does in some other countries. It is not improbable that laws such as the one in question arouse doubt and suspicion in the minds of the people toward members of the profession.

FRANCIS H. MACCARTHY, M.D., Boston.

"THE TREATMENT OF AMEBIC DYSENTERY WITH IPECAC BY RECTUM"

To the Editor:—THE JOURNAL, Sept. 28, 1918, and more recently, Jan. 18, 1919, published the results and experiences of Dr. G. B. Lawson and Dr. J. Cecikas on the treatment of amebic dysentery with ipecac by rectum. If you will turn to the classical memoir on dysentery and its treatment by Dr. Woodward, in the "Medical History of the War of the Rebellion," Part II, pp. 832 et al., you will find an interesting and valuable contribution on the subject. Doubtless the fact that ipecacuanha or emetin so often fell into disrepute through reports by earlier authorities was due to our ignorance of the part played by the endameba in the production of amebic dysentery. Fortunately now our cases may be selected. Recently I had occasion to use myristica (nutmeg) in the treatment of amebic dysentery, which justifies a trial when emetin has failed, or in those asthenic cases which contraindicate its use. The report covering this investigation is in the hands of the publishers with the permission of the Surgeon-General of the Army. To those who are specially interested in the subject of dysentery, permit me to recommend reference to Woodward's memoir, a veritable mine of

information. It will add corroboration to the "saw" of old, "There is nothing new under the sun." From observations in a number of our camps during the present war, I am of the opinion that amebic dysentery will be more common in our clinics than it has been in former years, not only among those who formed the American Expeditionary Forces, but also among those who got no farther than our Southern camps.

JOSEPH LEIDY, M.D., Philadelphia.

ANESTHETISTS IN HOSPITALS

To the Editor:—It has been brought to my attention, from various sources, that certain hospitals and surgeons employing nurses as anesthetists are paying these nurses on an average of $3 an anesthetic, while collecting from $10 to $15 from the patients for the anesthetic service rendered. In this connection I should appreciate receiving verified information regarding individual instances of this practice, for submission to those in a position to deal with the matter.

Incidentally, this practice has also involved the disbarment of licensed and qualified physicians from administering anesthetics in certain hospitals, the superintendents and surgeons of which are exploiting nurses as anesthetists. I should also like to have the detailed facts of such disbarment from all legally qualified practitioners who have been thus made the victims of a peculiar form of boycott.

F. H. MCMECHAN, M.D., Avon Lake, Ohio.
Secretary, American and Interstate Associations of Anesthetists.

RESULTS OF GENERAL ORDER 73 ON DEMOBILIZATION

To the Editor:—As the American Medical Association proved of great benefit to the Surgeon-General in the matter of obtaining physicians for the Medical Reserve Corps, it is probable that an objection from you concerning some of the practices now in force in the discharging of officers would have more weight than if from us as individuals. I refer to the changing of the status of the reserve officers by G. O. 73, W. D. 1918, and the practice of letting men out of the service without previous notice.

Those of us who entered the service prior to August were members of the Reserve Corps, commissioned to serve five years, on active service during a national emergency. At the termination of the emergency, we were to be ordered to our homes and there placed on an inactive basis. This gave us pay during the period of travel, and also the travel allowance of 7 cents a mile. But by the provisions of G. O. 73, the old Reserve was abolished. I wrote to the Surgeon-General some weeks ago, and recently had a reply to my question, in which it was stated that the members of the old Reserve were discharged, and that we were now all members of the National Army. As such we would be discharged where we might be serving, and would draw 4 cents a mile from the place of discharge. At the medical officers' training camp we were given to understand that we could not be discharged except by the President, and yet here was a wholesale slaughtering of commissions without any of us being asked so much as by your leave, again commissioned on an entirely different status, and all in the twinkling of an eye. In my own case, this order represents a loss to me of over $150, as I am now something over 3,000 miles from my home, and the difference in mileage plus the five days' pay that I lose, since discharges take effect before leaving one's last station, not on arrival at home, will be fully that much.

Furthermore, men are being discharged from this station, and I am told by friends elsewhere that this is not peculiar to this post, on a few minutes' notice. This means a further loss in pay, as usually one cannot pick up and leave without some little time to clear from property, etc.

I have personally talked to about a hundred medical officers. Is it any wonder that I have not yet been able to find one that will stay in the Reserve?

LIEUT., M. R. C.

[COMMENT.—We believe that our correspondent is correct in his statement, and that under General Order 73, which combined all branches of the service, officers of the Reserve Corps have had all the privileges of their former status as reserve officers removed. The Judge Advocate General has held that it is not possible to restore automatically reserve officers to the status they held before the issuing of General Order 73.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CUMULATIVE ACTION OF STRYCHNIN—DISPENSING OF PHARMACOPEIAL TINCTURES AND FLUIDEXTRACTS

To the Editor:—1. Owing to the cumulative action of strychnin, would it be safe for a person of medium weight to take one-thirtieth grain four times a day for a period of one year? 2. I dispense small quantities of tinctures and fluidextracts which I keep in my office and carry in my bag. I am not bonded. Am I violating the law; if so, how should I proceed to comply with it? Please do not print my name.

C. S. R.

ANSWER.—1. Authorities do not all agree that strychnin has a cumulative action. Some state that large doses of strychnin may lead to toxic symptoms through cumulation. According to Hatcher and Wilbert, no danger of serious poisoning is to be feared when the daily dosage is limited to 0.01 gm. (one-sixth grain) and the administration of the drug stopped on the appearance of increased sensitivity of the reflexes. While it might be safe to give one-thirtieth grain of strychnin four times a day for a period of one year, there would seem to be no reason for continuing the administration of the drug over such a long period. It would be better, perhaps, to give one-twentieth grain three or four times a day for from ten days to two weeks and then to discontinue for a week or two before repeating.

2. Physicians who dispense small quantities of pharmacopeial tinctures and fluidextracts need not be bonded.

"THE SURGICAL TREATMENT OF EMPYEMA BY A CLOSED METHOD"

To the Editor:—In THE JOURNAL, Dec. 21, 1918, p. 2062, is an article on the treatment of empyema by a new method. I think it is an old operation, done in the eighties as the "Bülau operation," and spoken of in an article by Immermann in the *Deutsche medizinische Wochenschrift* of 1887. This statement is made for the purpose of correctness; hence I would thank you if you could verify it.

G. WILLIAM POEHL, M.D., St. Louis.

ANSWER.—The article to which our correspondent refers was by Immermann, in the *Deutsche medizinische Wochenschrift* **13**:169, 1887. Immermann's method, which is said to be a modification of one he saw used in Basle (the name of the operator is not mentioned) and, again, later in Hamburg by Curschmann, consists in emptying and continuous aspiration of the fluid from the chest abscess. The method is like that described in THE JOURNAL by Mozingo in the first step, the making of the puncture and the insertion of a drainage tube; after that the two differ. Immermann does not use an aspirating syringe, nor does he inject any fluid into the abscess cavity. He merely provides for continuous drainage into a bottle containing salicylic acid or thymol solution, but, like Mozingo, insists on having an air-tight drainage tube so that the expanding lung will gradually obliterate the abscess cavity, and hence prevent the formation of adhesions.

Mortality Due to Snakes and Animals in India.—Vice Consul Charles M. Haywood at Calcutta (*Commerce Reports*) says that snake bite caused the death of 23,918 persons in British India in 1917, an increase of nearly 300 over the previous year. The number of snakes destroyed increased from 65,765 in 1916 to 73,968 in 1917, for the killing of which bounties to the amount of $1,045 were paid. Wild animals killed 2,176 persons in 1917, 102 less than in 1916. Tigers were responsible for 1,009 deaths, leopards for 339, wolves and bears for 280 and elephants and hyenas for 89. Of the 149 deaths caused by other animals, 89 were caused by pigs and 199 by crocodiles and alligators. During the year 19,476 wild animals were destroyed, of which 1,295 were tigers, 6,037 leopards, 2,784 bears and 2,147 wolves.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, March 4. Sec., Dr. L. P. Dawes, Juneau.

CALIFORNIA: Los Angeles, March 17-20. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

CONNECTICUT: New Haven, March 11-12. Sec. Reg. Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 730 State St., Bridgeport, and Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven

ILLINOIS: Chicago, March 3-5. Mr. F. C. Dodds, Supt. of Registration, Springfield.

INDIANA: Indianapolis, Feb. 26-28. Sec., Dr. W. T. Gott, 84 State Capitol Bldg., Indianapolis.

KANSAS: Topeka, Feb. 11. Sec., Dr. H. A. Dykes, Lebanon.

MASSACHUSETTS: Boston, March 11-13. Sec., Dr. W. P. Bowers, Rm. 501, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, Feb. 12. Sec., Dr. H. J. Lehnhoff, 514 First Natl. Bank Bldg., Lincoln.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

VERMONT: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.

WYOMING: Moorcroft, Feb. 12-14. Sec., Dr. H. E. McCollum, Laramie.

Wyoming October Examination

Dr. H. E. McCollum, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, Oct. 10-12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Ten candidates were examined, including 2 osteopaths, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago Hospital College of Medicine (1918) 80.6, 80.8, 83.4, 88.6, 89.9		
Loyola University	(1917)	82.9
National University of Arts and Sciences	(1915)	85
St. Louis College of Phys. and Surg.	(1917)	90.7

Nevada November Examination

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 4-6, 1918. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 5 candidates examined, 4 passed and 1 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1916)	93.3
Hahnemann Medical College of the Pacific	(1918)	86, 89.8
University of Oregon	(1906)	94.4
FAILED		
University of Arkansas	(1914)	56.7

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Hahnemann Medical College and Hospital of Chicago	(1891)	Nebraska
Rush Medical College	(1875)	Illinois
State University of Iowa College of H. Med.	(1903)	Iowa
Albany Medical College	(1909)	Illinois
Bellevue Hospital Medical College	(1883)	Missouri
Medical College of Ohio	(1883)	Colorado

Massachusetts November Examination

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Nov. 13-15, 1918. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 32 candidates examined, 22, including 3 osteopaths, passed, and 10, including 3 osteopaths, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1917)	82.6
University of Colorado	(1911)	78.3
American Medical Missionary College	(1909)	75.6
Chicago Hospital College of Medicine	(1918)	75.4, 81.4
Hahnemann Med. Coll. and Hosp. of Chicago	(1918)	84.6
Medical School of Maine	(1876)	75.7
Baltimore Medical College	(1903)	75
Johns Hopkins University	(1918)	80.8
Boston University	(1882) 75.7;	(1918) 78.5, 79.3
Tufts College Medical School	(1918)	78.5, 82
Syracuse University	(1918)	87.4
Jefferson Medical College	(1894)	75
Temple University	(1918)	77.7
University of Pennsylvania	(1918)	82.2
Woman's Med. Coll. of Penna.	(1906)	75
FAILED		
Chicago Hospital College of Medicine	(1918)	72.5
Baltimore Medical College	(1905)	69.7
College of Physicians and Surgeons, Boston	(1915)	68.2, 71.7
Middlesex College of Medicine and Surgery	(1918)	67.6, 70.3
Laval University	(1917)	71.8

Dr. Bowers also reports that 6 candidates were licensed at the special examinations given for emergency service. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1889)	80
State University of Iowa College of Homeo. Med.	(1918)	79.5
Baltimore Medical College	(1897)	80.4
Boston University	(1918)	81
Harvard University	(1918)	82.7
Tufts College Medical School	(1918)	77.3

Delaware December Examination

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the practical and written examination held at Wilmington, Dec. 10-12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
New York Homeo. Med. Coll. and Flower Hosp.	(1916)	90
Jefferson Medical College	(1918)	83.7
Temple University	(1918)	79.1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Maryland Medical College	(1909)	Maine; (1912) Penna.
Southern Homeopathic Medical College	(1902)	Maryland
Jefferson Medical College	(1892) (1909)	Penna; (1915) Virginia
University of Pennsylvania	(1910)	Penna.
Woman's Medical College of Pennsylvania	(1916)	New York

Rhode Island January Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the oral, practical and written examination held at Providence, Jan. 2-3, 1919. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Harvard University	(1917)	90.3, 91
Tufts College Medical School	(1917)	88.9
Hahnemann Med. Coll. of Philadelphia	(1881)	80
University of St. Joseph, Beirut	(1894)	81.2
FAILED		
College of Physicians and Surgeons, Boston	(1910)	74

New York Meeting

Mr. George M. Wiley, director, Examinations and Inspections Division, reports that 17 candidates were licensed by indorsement of credentials from April 15 to Dec. 10, 1918. Thirteen candidates were granted reregistration certificates. The following colleges were represented:

College	Year Grad.	Endorsement with
LICENSED BY INDORSEMENT		
Chicago Homeopathic Medical College	(1885)	Indiana
Baltimore Medical College	(1895)	Delaware
University Medical College of K. C.	(1904)	Indiana
Albany Medical College	(1914, 2)	New Jersey
Columbia University	(1916)	New Jersey
Long Island College Hospital	(1895)	New Jersey
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	Delaware
	(1916)	New Jersey
Eclectic Medical College	(1916)	Ohio
Western Reserve University	(1915)	Ohio
Jefferson Medical College	(1914)	Delaware
Medico-Chirurgical College of Philadelphia	(1898)	New Jersey
Woman's Medical College of Pennsylvania	(1890) (1902)	New Jersey
University College of Medicine	(1909)	Virginia
Trinity Medical College	(1896)	New Jersey

Mr. Wiley also reports that 6 candidates were licensed by indorsement by the Board of Regents under provisions of

Chapter 357, laws 1917. The following colleges were represented:

College	LICENSED BY INDORSEMENT	Year Grad.	No. Endorsed
Harvard University		(1888)	1
University of Minnesota		(1897)	1
Albany Medical College		(1894)	1
Jefferson Medical College		(1882)	1
Woman's Medical College of Pennsylvania		(1895)	1
Licentiate of the Apothecaries Hall of Dublin		(1887)	1

Book Notices

LA GANGRÈNE GAZEUSE. BACTÉRIOLOGIE, REPRODUCTION EXPÉRIMENTALE, SÉROTHÉRAPIE. Par M. Weinberg, Chef de Laboratoire et P. Séguin, Boursier à l'Institut Pasteur. Paper. Price, 20 fr. Pp. 444, with 61 illustrations. Paris: Masson et Cie, 1918.

This monograph summarizes our knowledge of the bacteriology and nature of the infections now usually called gas gangrene, presenting what we knew before the war and the information derived from extensive investigations during the first two or three years of hostilities. The first part deals with the period before the war, and an effort is made to clear up so far as possible the relations of the micro-organisms described under various names as causing "emphysematous gangrene." It appears that the so-called gas bacillus described by Welch and Nuttall in 1892 under the name of *B. aerogenes-capsulatus* corresponds to the bacillus described independently in 1897 by Veillen and Zaber as *B. perpringens*, this name, which is used in France, being the first name of this bacillus to conform to the rules of binomial nomenclature. The second part describes the microbes, anaerobic as well as aerobic, of the gas infections studied by the authors as well as by others during the war. In the third part is discussed the genesis of these infections, the different forms, and their experimental production. The fourth part is concerned with the serum treatment of gas infections, a new and promising departure during the war, the final evaluation of which must be awaited. The illustrations are superior, and the bibliography is complete to October, 1917. This book is unquestionably the most valuable in its field, and will always be a great landmark in the study of gas infections.

THE NEWER KNOWLEDGE OF NUTRITION. The Use of Food for the Preservation of Vitality and Health. By E. V. McCollum, School of Hygiene and Public Health, The Johns Hopkins University. Cloth. Price, $1.50. Pp. 199, with illustrations. New York: The Macmillan Company, 1918.

In this small volume the author tells the result of nearly 3,000 feeding experiments, and correlates the results with clinical facts. As the name indicates, the book deals with the newer knowledge of nutrition, which till now has been written in technical language and scattered through technical journals. The author here digests the literature, and presents the latest opinions in nontechnical, simple language that reads as easy as a novel. This he is well able to do because he is master of the subject.

At this time, when chemistry is in the saddle, the unbiased attitude of the author, who is a chemist, is plainly stated (page 54):

> Without in the least attempting disparagement of the value of the services of the chemist in the study of the problems of nutrition, it may truthfully be said that both his ordinary, and his unusual and most searching methods for the analysis of foodstuffs fail to throw any great amount of light on the value of a food or a mixture of foods for inducing growth.

In his investigations, therefore, he used the biologic method for the analysis of a foodstuff, and in this presentation he discusses it. He considers especially growth, experimental scurvy, the vegetarian diet, foods of animal origin, diseases referable to faulty diet or deficiency diseases, the nursing mother as a factor of safety in the nutrition of the suckling, and the planning of the diet.

Funk (*Lancet* **2**:1266, 1911), through the vitamin hypothesis, attempted to account for the diseases scurvy, rickets, pellagra, beriberi, etc., as being each due to the lack of a specific chemical substance, vitamin, in the diet. McCollum criticizes this term and others, showing why they are inappropriate, and supplants the term with the indefinite terms fat-soluble A and water-soluble B. These terms, however, are not final, since they are used to mean only that the deficient substance in one case is soluble in fat, and is usually found in butter, and in the other that it is soluble in water. This indefiniteness is vividly illustrated in the final page (114) of the chapter on deficiency diseases. Here he says:

> Pellagra, scurvy and rickets do not belong to the same category with beriberi. . . . There do not exist "curative" substances for these diseases. . . . The faults . . . have been shown to reside in maladjustments of and unsatisfactory quantitative relationships among the now well recognized constituent of the normal diet. They are to be sought in the quality and quantity of the protein, the character and amount of the inorganic constituents, the physical properties of the residues which are left after digestion, and form the feces from which the intestine must rid itself.

This maladjustment, he states, can be remedied by the more liberal use of milk, butter, cream, eggs and leafly vegetables which furnish fat-soluble A; but occasionally diets are encountered that contain too little of the water-soluble B. This in reality is not new to most clinicians, but is the old remedy in a different vehicle. However, the book contains much that is new, is full of suggestions, and is a distinct addition to preventive medicine.

THE WASSERMANN TEST. By Charles F. Craig, A.M., M.D., Lieutenant-Colonel, Medical Corps, United States Army. Published with authority of the Surgeon-General, United States Army. Cloth. Price, $3. Pp. 239, with illustrations. St. Louis: C. V. Mosby Company, 1918.

This book is published because the author was urged to record his experience with the Wassermann test in the diagnosis and treatment of syphilis through many years. The writer's modification of the Wassermann method, which has been used very extensively and which seems to be quite as simple and as accurate as any other method, is described fully and clearly. At the same time the most important observations in regard to the test in the literature are considered. The author emphasizes that much of the misunderstanding and confusion among physicians in regard to the value and the limitations of the Wassermann test are due largely to the fact that the test frequently is delegated to poorly trained or careless assistants, the results consequently often being erroneus and unsatisfactory. It is, of course, essential, if reliable results are to be obtained, that the test always be made by competent serologists. The last paragraph in the book may be quoted in full to show the author's opinion of the Wassermann test of the cerebrospinal fluid:

> In no case can it be stated that the syphilitic patient has been given the best that it is possible for medical science to give him, either in the way of diagnosis or treatment, if the thorough examination of the cerebrospinal fluid has been omitted; and this examination should become as much of a routine in the diagnosis and treatment of syphilis as is the Wassermann test on the blood serum.

This book is a standard authority in its field, and may be accepted with complete confidence for guidance and instruction in carrying out the Wassermann test.

THE SPLEEN AND ANÆMIA. Experimental and Clinical Studies. By Richard Mills Pearce, M.D., Sc.D., Professor of Research Medicine, with the assistance of Edward Bell Krumbhaar, M.D., Ph.D., Assistant Professor of Research Medicine, and Charles Harrison Frazier, M.D., Sc.D., Professor of Clinical Surgery, University of Pennsylvania. Cloth. Price, $5. Pp. 419, with 16 illustrations. Philadelphia: J. B. Lippincott Company, 1918.

This book is divided into three parts. The first and largest consists of ten chapters by R. M. Pearce, on the effects of splenectomy. The relation of the spleen to blood destruction and regeneration, the changes in the bone marrow, the liver and the lymph nodes after splenectomy, and the effects of splenectomy on metabolism as observed in the dog as well as in man are discussed on the basis of experimental studies previously reported from time to time in medical journals and now largely rewritten. The second part, by E. B. Krumbhaar, contains clinical observations on the various forms of splenomegaly accompanied by anemia, and their diagnosis and treatment. The third part, by Charles H. Frazier, discusses the surgical treatment of diseases of the spleen, and brings out the new points in regard to splenectomy learned from its extended use in recent years. It should be

noted that injuries, infections and tumors of the spleen are not considered, and that the relation of the spleen to the leukocytes is discussed only incidentally, the emphasis being on the relation of the spleen to the red cells. The thorough consideration of splenectomy as a method of studying the relation of the spleen to blood destruction and regeneration and of treatment of human diseases of the spleen accompanied by anemia, as well as of the classification, diagnosis and treatment of the noninfectious splenomegalies accompanied with blood destruction makes this a highly valuable book, of interest to all physicians in any way concerned about the diseases of the spleen.

Social Medicine, Medical Economics and Miscellany

To Protect the Clothing in Irrigating the Eye

This illustration shows how a piece of adhesive plaster can be used to form a funnel to drain away fluid used in irrigating the eye, without letting it run down to the ear and neck. The plaster is cut out to fit around the eye, and the lower corners are brought up to form the funnel. This little device has been used for several years by Dr. F. Lopez, who describes it in the *Anales de la Sociedad Oftalmologica Mexicana*, **1**:101, 1918. This new journal, by the way, publishes on separate, loose cards summaries in English and French of its original articles, ready for filing. The address is Donato Guerra 11, Mexico, D. F.

Air Conditioning in the Home

In the *Ohio Public Health Journal* for November, 1918, Emery R. Hayhurst details experiments in his own home to determine whether the average sized residence could be air conditioned, especially in regard to maintaining a proper humidity (from 40 to 50 per cent.), comfortable temperature and healthful atmosphere during the closed-up season of the year, and in a manner to be practical and feasible for the small householder. This house was heated by hot air furnace and contained several grates burning natural gas. Among the observations and deductions of the experimenter were the following: The comfortable living room atmosphere may be defined as one in which there is a barely perceptible circulation of air, yet without draft; temperature not depressingly high nor uncomfortably low, with heat more or less evenly diffused throughout the rooms; a degree of humidity which is neither high enough to be depressing nor low (dry) enough to be irritating; the absence of noxious gases, as those escaping from stoves or grates and, obviously, dust, smoke or disagreeable odors. Standardizing the foregoing, the air should move at a velocity of about 1 foot a second; its movement should be varied in direction; it need not be over 68 F., provided the degree of saturation with water vapor amounts to from 40 to 50 per cent. In air conditioning a residence, the chief problems to be considered and controlled are: movement of the air to overcome stagnation and stratification (indirect heating, as by hot air furnace, or perhaps the use, at times, of an electric fan accomplishes this); prevention or control of heat loss through direct filtration of heated air outward and ingress of cold air into the building (taking place rapidly about doors, windows and baseboards, floors, and especially chimney flue openings); direct conduction of heat through walls, window panes and floors; and loss of water vapor which may have been added to the air for bringing up humidity requirements. The question therefore reduces itself practically to one of heat and humidity control, part of which is accomplished by correct building construction, and the remainder by the usual type of hot air furnace and a humidifying device. When outside temperatures mount above the freezing point, 32 F., artificial humidification is not necessary; with the persistence of outside temperature below freezing, indirect heating methods, such as the hot air furnace, produce excessive dryness, which should be corrected. Heating of rooms by naked natural gas flames in grates results in sufficient atmospheric humidity (from 40 to 60 per cent.). With this degree of relative humidity "room comfort" is attained with temperatures as low as 60 F., though this probably does not mean any less consumption of fuel, as the extra amount is used up in evaporating the moisture which comes in contact with the heated air and the furnace box. It is, however, more healthful and comfortable, since it does away with the necessity of excessive heating (from 70 to 80 F.) in order to feel comfortable on cold days.

Revision of the Nomenclature of Diseases

The official "Nomenclature of Diseases" is drawn up by a committee appointed by the Royal College of Physicians, and is subject to decennial revision. The first edition was begun in 1859 and completed in 1869; subsequent editions have been published in 1884, 1896 and 1906. The fifth edition, which was begun in 1912, has just been published and shows many changes corresponding to the progress of medical science. For the first time three new groups of diseases are recognized: disease of the blood, diseases of the ductless or endocrine glands, and diseases due to disorders of nutrition or of metabolism. The triple column of Latin, French and German equivalents which formed a prominent feature in previous editions has been omitted. The aim of the compilers of the first edition in 1869 was "to prepare a nomenclature suitable to England and to all countries where the English language is in common use and to lay the foundations for a nomenclature of diseases in any language extant on earth." With this object they supplied for each name the corresponding Latin term, which is the language of ancient science and probably the fittest language for a nomenclature common to all the world: and also the equivalent term in the three modern languages that are the richest in medical learning and literature—French, German and Italian. The Italian version was omitted in the third edition, but the Latin, French and German equivalents were retained in the third and fourth editions. The decision to omit the foreign equivalents in the present edition was made on the grounds that the ambition of the compilers of the first edition to be founders of an international nomenclature has not been realized; it is impossible to guarantee the correctness of the French and German equivalents except by international agreement, and the insertion of the French and German names of every disease is beyond the scope of a British nomenclature of diseases. The omission of the Latin and Greek equivalents requires a more detailed explanation. It is pointed out that the Latin equivalents are very often translations of English phrases, and that many of the names of diseases in common use are framed on a Latin or Greek basis, or are hybrid combinations sanctioned by time. Such names, therefore, need not be expressed in separate Latin columns. In this volume Latin and Greek names have been incorporated in the text either as synonyms of English names or as main headings in any case in which the Latin or Greek name is more frequently used than the English equivalent. The committee express the hope that with the present simplification, the nomenclature of diseases will be generally used by all physicians for the registration of diseases, and the return of causes of death, since uniformity of terms is of the greatest importance for all statistical purposes.

Medicolegal

Hospital Records as Evidence in Criminal Cases

(Bolden v. State (Tenn.), 203 S. W. R. 755)

The Supreme Court of Tennessee, in reversing a judgment of conviction of defendant Bolden of the murder of one George Norman, says that the only proof claimed by the state to have been made of the death of Norman was the testimony of the superintendent of a hospital to which Norman had been taken after he was shot by the defendant. The superintendent testified in substance that he produced and filed the record of George Norman as a patient in the hospital, showing by its recitals that the latter was admitted on the day of the shooting and died there six days later, the diagnosis being gunshot wound of the peritoneum. The witness knew nothing about George Norman, except what the records of the hospital showed. The witness did not make the entries in the record, but they were made at his direction, and under his control and supervision, and it was part of his duty as superintendent to see that they were correctly made. The witness did not know George Norman; had never seen him. He did not know, of his own knowledge, whether Norman was dead or not. It was insisted by the state that this was sufficient proof of the death of Norman to sustain the conviction, but the supreme court does not think so. Hospital records of the condition of patients are held to be competent evidence as entries by a third and disinterested person made in the routine of the business of the hospital. But such entries are not to be received in a criminal case, if the enterer can be produced at the trial to testify in person as to the matters he has recorded. If, however, his memory as to the facts recorded has failed, he may testify that the entries were correctly made by him at the time, and then the entries may be admitted. In this case the superintendent of the hospital did not even testify that the record was correctly kept by his subordinates, and the court is of the opinion that the testimony was incompetent. The proof offered in this case did not stand on a higher plane than hearsay. This being the only proof of the death of the person proved to have been shot by the defendant, there must be a reversal of the judgment and a remanding of the case for a new trial.

Allows Use of Saccharin in Beverages

(People v. Excelsior Bottling Works, Inc. (N. Y.), 171 N. Y. Supp. 733)

The Supreme Court of New York, Appellate Division, First Department, takes a different view of the use of saccharin as a sweetener from that of the Court of Special Sessions of the City of New York, and reverses the latter's judgment of conviction of the defendant for having in its possession and offering for sale as a beverage bottled strawberry soda, which it was alleged was adulterated, in that saccharin, a deleterious ingredient, had been used as a sweetener or substitute for sugar, injuriously affecting the quality of the soda water, in violation of the sanitary code and a resolution of the board of health. The court says that, so far as appeared, the question has not been before the federal courts for decision with respect to the use of saccharin in food products. The decision of the secretaries of agriculture, commerce and labor, and of the treasury, based on the report of the referee board of consulting experts, was intended, this court thinks, to prevent the use of saccharin as a sweetener for food products proper, such as canned vegetables, preserves and candy. It is quite evident that the secretaries were not considering the use of saccharin in beverages.

There was a label on the bottle containing printed matter, including the statement: "Sweetened with Sugar and One One-Hundredth of One per cent. of Saccharin (Benzo-Sulphinide)." The uncontroverted evidence showed that the use of soda water as a beverage containing this quantity of saccharin could not possibly be injurious to health, and that there is greater danger of injury to health from consuming too much sugar than from the consumption of saccharin in such a percentage. It also appeared that the use of sugar in any form is injurious to people suffering from diabetes and some other diseases, while the use of saccharin by them to flavor food and render it palatable is prescribed by medical authorities. The only possible theory on which such use of saccharin could be prohibited is to prevent deception, by leading purchasers to think that the food products had been sweetened by sugar, which contains a food value, and not by saccharin, which has no food value. There was in this case no evidence of deception, and the label was designed to prevent deception. Soda water is not a natural food product, but is a compound of food products, and the court is of the opinion that such use of saccharin comes within the proviso contained in Section 68 of the Sanitary Code relating to a mixture of compounds by their own distinctive name, and that the label complied with the requirements thereof. The resolution of the board of health was not enacted in form as an amendment of the sanitary code, and it could not be given effect as such. The only authority of the board to adopt resolutions with respect to the sanitary code was to carry the provisions thereof into effect. Moreover, since saccharin is not injurious to health, its use may be regulated, but cannot be prohibited, under the exercise of the police power, and therefore the court thinks the resolution was void.

If a standard of purity or with respect to the ingredients to be used in making soda water had been prescribed by the legislature, or by legislative authority, then it might well be argued that no other ingredients could lawfully be used in making it. It is perfectly obvious that, entirely aside from the question of disease or medical advice, some people may desire, especially in hot weather, a cooling beverage that contains no food value, or that has been sweetened to render it palatable by the use of saccharin, instead of by the use of sugar, and there is therefore no occasion or authority for prohibiting such use of saccharin. It follows that the conviction should be reversed, and the information dismissed.

Care Required of Injured Person

(Flint v. Connecticut Hassam Paving Company (Conn.), 103 Atl. R. 840)

The Supreme Court of Errors of Connecticut, in affirming a judgment in favor of the plaintiff for damages for personal injuries alleged to have been caused by the defendant's negligence, says that the plaintiff on the trial had offered evidence that she had sustained injuries which were permanent, that as soon as possible after the infliction of her injury she had procured medical treatment from a physician and surgeon in good standing and long experience, and that she had followed his advice and taken his treatment. The defendant offered evidence that the plaintiff did not act with reasonable care, endeavoring to cure herself of her injuries, but that, had she received proper treatment, she would have recovered much sooner. It was contended by the defendant that the trial court should have left to the jury as a question of fact whether the plaintiff had exercised ordinary care in her efforts to effect a cure. What the jury was instructed was that:

> In arriving at the amount of your verdict, you should make no deductions on any theory that she might have been cured earlier by different treatment; for, if you find that she in good faith employed such medical aid as she thought suitable and endeavored to cure herself, it makes no difference whether she used the best methods in such endeavor to cure herself or not. She should not suffer anything, or any loss, even if you come to the conclusion that any other kind of medical treatment might have effected a cure.

This instruction was erroneous, but harmless. It was the duty of the plaintiff to use ordinary care to cure and restore herself, and reckless or negligent conduct on her part, if thereby her injuries were enhanced, could not be charged to the defendant. But it did not appear that the defendant requested the court to give the jury any instructions on this question, nor did it appear what act of omission or commission on the part of the plaintiff, by which her cure was retarded, was imprudent or negligent; on the contrary, it did appear that she did do all that careful and prudent conduct required in consulting a physician of good standing and following his advice as to treatment. It would seem that the jury could not have been misled by the instruction given, although as an abstract proposition it is the law that it was not a question of good faith on the part of the plaintiff, but

one of ordinary care. But the trial court correctly informed the jury "that no diminution of damages should be made, if some other kind of medical treatment might have effected a cure"—that is, always on the condition that the plaintiff exercised ordinary care in selecting a physician and the treatment she was to follow.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics, York, Pa.

January, 1919, **79**, No. 1

*Recognition and Management of Labor Injuries. A. J. Skeel.—p. 1.
*Vertigo of Menopause. K. I. Sanes.—p. 7.
*Intestinal Actinomycosis. J. W. Keefe.—p. 13.
Problems of Ureteral Surgery in Gynecology. G. Van A. Brown.—p. 19.
Accidental Removal of Intestines Through Vaginal Vault. E. J. Ill.—p. 29.
Prevention of Recurrence of Symptoms Following Operations for Gall-Stones. J. H. Jacobson.—p. 32.
Operations for Stigmata of Decline. R. T. Morris.—p. 38.
*Clinical, Pathological, and Sociological Observations on Ninety Interned Venereal Patients. J. E. Davis.—p. 40.
Painless Childbirth and Safe Conduct of Labor. H. Schwarz.—p. 46.
Pathology of Chronic Metritis and Chronic Subinvolution. O. H. Schwarz.—p. 63.
Effect of Anterior Wall and Suspension Operations on Floor of Female Bladder. W. A. Jewett.—p. 94.
Comparative Study of Mechanism of Labor. W. Pfeiffer.—p. 99.

The articles by Drs. Skeel, Sanes and Davis were abstracted in THE JOURNAL, Oct. 19, 1918, pp. 1339 and 1340. Dr. Keefe's article was abstracted in THE JOURNAL, Oct. 25, 1918, p. 1434.

Archives of Diagnosis, New York

October, 1918, **11**, No. 2

Epidemic Catarrhal Fever; La Grippe; Influenza. W. L. Somerset.—p. 110.

Boston Medical and Surgical Journal

Jan. 16, 1919, **180**, No. 3

Work of an American School for Rehabilitation of Disabled. D. C. McMurtrie.—p. 59.
Influenza: Is It a Hazard to be Healthy? D. B. Armstrong.—p. 65.
*Study of One Thousand Diphtheria Deaths. B. W. Carey.—p. 67.
Thrombosis of Lateral Sinus. G. A. Moore.—p. 71.

Study of One Thousand Diphtheria Deaths.—A statistical study was made by Carey for the Massachusetts Department of Health of 1,000 deaths due to diphtheria. Twenty per cent. of the deaths occurred in children less than 1 year of age; 25 per cent. between 1 and 3 years; 62 per cent. of all deaths occured before the age of 5. Laryngeal diphtheria was far more prevalent than other forms; pharyngeal was next in order of frequency and the nasal form last. Carey believes that if the laryngeal cases were diagnosed earlier, the mortality from these cases would be lower. He urges that a culture should be taken in all conditions where there is a possibility, even though remote, for diphtheria to be suspected.

Twenty-three and one-tenth per cent. of the patients were sick a week, 4.2 per cent. were sick from one to two weeks, and 4.2 per cent. were ill several days without medical attention. Eleven and eight-tenths per cent. were found moribund on visitation by the physician. Here again is evidence for the necessity of awakening people, through educational methods, to their responsibility to their children. Sudden death occurred in 5.2 per cent. of the cases. In many instances lack of nursing care was the responsible factor. Another factor in the sudden death group appeared to be the repeated attempts at intubation where, for some reason, the tube was either not properly introduced or else expelled.

The dosage of antitoxin was extremely varied in amount, the number of doses given, and the interval between dosage. In twenty-nine instances, it was found that less than 3,000 units were administered. The amount increased from this to a point where a young child of 3 years received 225,000 units. The usual doses, however, seem to have been from 6,000 to 9,000 units. The number of doses varied from one to several on consecutive days and in a few instances it was administered every four hours until death occurred. In one instance 80,000 units were given in this manner. In no instance was antitoxin given intravenously. Carey urges that particular stress be laid in the instruction of medical students on the necessity of properly administering antitoxin, thus avoiding the chances for anaphylactic reaction and impressing on them the need of early and sufficient treatment.

Canadian Medical Association Journal, Toronto

January, 1919, **9**, No. 1

War Activities in Medicine and Surgery. A. Primrose.—p. 1.
*Liquid-Tight Closure and Treatment of Infected Wounds. W. H. Taylor, and N. B. Taylor.—p. 11.
Pensionability of Disabled Soldier. J. L. Biggar.—p. 28.
Medical Services of Department of Soldiers' Civil Re-Establishment. F. McKelvey Bell.—p. 34.
Influenza Epidemic at Bramshott in September-October, 1918. C. E. C. Cole.—p. 41.
Work of Stationary Hospital in Field. S. H. McKee.—p. 49.
*Auto-Serum Treatment of Chorea. A. Brown, G. E. Smith and G. Phillips.—p. 52.
Trinitrotoluene Poisoning. H. Odland.—p. 63.

Liquid-Tight Closure and Treatment of Infected Wounds.—The Taylors have devised a water tight dressing by means of which one is enabled alternately to fill and evacuate a deep wound; to fill it even to its remote recesses with irrigating fluid under positive pressure and to empty it again under negative pressure. These alternating pressures set up an ebb and flow current within the cavity of the wound and its ramifications, with the result that, with each cycle, the consistency of the pus becomes rapidly reduced. A greater and greater dilution of pus is effected at each flushing of the wound—a dilution progressing geometrically—until finally the effluent grows clear and the lining granulations clean. The authors have found that thirty-six hours is the average time required to cleanse a wound of pus. On removal of the appliance at the end of this period, clear fluid alone can be expressed from the wound and its sidetracks. The suppurative processes have not been brought to a standstill, but pus is carried away as quickly as it is formed; the solution is being brought into contact with the granulations lining the walls of all parts of the wound cavity, and bacteria, not embedded in the tissues, are rendered inert through dilution.

Autoserum Treatment of Chorea.—The treatment employed by the authors consisted of the injection into the lumbar cord region of about 20 c.c. of blood serum obtained from 50 c.c. of blood withdrawn from the median basilic vein. Of twenty-three patients so treated, 77 per cent. were cured, 19 per cent. improved and one unimproved, this one having refused further treatment on account of a severe reaction. There has been no recurrence so far. In all instances, except six in which tonsils were removed, there were observed what were apparently foci of infection, which were attended to after the course of treatment. Of the twenty-three cases, seventeen were of a mild degree and five were severe. In four instances the duration of the disease was over a year, while the remainder showed symptoms on an average of six and a half weeks' standing. The average number of injections given were three; several patients were given only one injection, while in one instance five injections were administered before a cure was affected. The average amount of serum injected was 17 c.c. Nineteen patients were cured in three weeks and four were cured within one week. All the severe cases required more than one injection. In practically every instance there had been previous medical treatment given with the usual indifferent and unsatisfactory results. In most cases there was a mild reaction in the form of vomiting and an occasional rise of temperature; on only one occasion was the reaction of such a nature as to prevent the return of the patient to the clinic and that owing to parental objection. The withdrawal of an amount of spinal fluid equal to that of serum injected did not appear to be necessary.

Journal of Experimental Medicine, Baltimore

Jan. 1, 1919, **29**, No. 1

*Effect of Dry Heat on Blood Count in Animals. J. B. Murphy and E. Sturm.—p. 1.
*Source of Lymphocytosis Induced by Means of Heat. W. Nakahara.—p. 17.

*Lymphocytes in Natural and Induced Resistance to Transplanted Cancer. J. B. Murphy and E. Sturm.—p. 25.
*Effect of Stimulation of Lymphocytes on Rate of Growth of Spontaneous Tumors in Mice. J. B. Murphy and E. Sturm.—p. 31.
*Rôle of Lymphoid Tissue in Resistance to Experimental Tuberculosis in Mice. J. B. Murphy and E. Sturm.—p. 35.
*Effect of Exposure to Sun on Circulating Lymphocytes in Man. H. D. Taylor.—p. 41.
*Studies on Roentgen-Ray Effects. Destructive Action on Blood Cells. H. D. Taylor, W. D. Witherbee and J. B. Murphy.—p. 53.
*Id. Stimulative Action on Lymphocytes. M. M. Thomas, H. D. Taylor and W. D. Witherbee.—p. 75.
*Id. Changes in Lymphoid Organs After Small Doses of Roentgen Rays. W. Nakahara.—p. 83.
*Id. Direct Action of Roentgen Rays on Transplantable Cancers of Mice. E. Hill, J. J. Morton and W. D. Witherbee.—p. 89.
*Blood Counts in Experimental Poliomyelitis in Monkey. H. D. Taylor.—p. 97.
*Effects of Large Doses of Roentgen Rays on Susceptibility of Monkey to Experimental Poliomyelitis. H. L. Amoss, H. D. Taylor and W. D. Witherbee.—p. 115.
*Action of Chlorinated Antiseptics on Blood Clot. H. D. Taylor and M. G. Stebbins.—p. 125.
Tropistic Action of Blood Vessels on Migration of Chromatophores. H. D. Taylor.—p. 133.

Effect of Dry Heat on Blood Count.—Animals subjected to dry heat for a short period show a sharp fall in the total white blood count, both the polymorphonuclear leukocytes, and the lymphocytes taking part in the fall. Following this there is a slow recovery on the part of the polymorphonuclear leukocytes, which generally require several weeks to regain their normal number. The lymphocytes rise rapidly after the initial fall and continue to rise for 2 or 3 weeks. This increase often amounts to a gain of over 200 to 300 per cent. above the normal count for the animal. These observations were made on mice, rats and guinea-pigs. The circulating lymphocytes during the more active stage of stimulation after heating show numerous examples of amitotic division. The source of the heat in these experiments was an electric bulb of frosted glass, giving the maximum heat of the amount of light generated. The method of application varied with the size of the animal and its ability to stand the higher temperatures.

Lymphocytosis Induced by Means of Heat.—A striking number of mitotic figures have been observed in the germinal center of the spleen and lymph glands during the regeneration of the cellular elements of these organs after the destructive effect of heat. This enhanced cell proliferation is interpreted by Nakahara as more than compensating for the degenerated cells, because of the subsequent enlargement of the organs. It has also been pointed out that the characteristic decrease in the number of lymphocytes immediately after the heat treatment is always accompanied by an extensive cell degeneration in spleen and lymph glands at the corresponding period. On this basis it seems evident that the pronounced lymphocytosis induced by means of heat treatment of the animal is due, at least in part, to the enhanced proliferative activity of germinal centers in the spleen and lymph glands, reacting to the destructive effect of heat on lymphoid cells.

Lymphocytes in Resistance to Transplanted Cancer.—The experiments made by Murphy and Sturm, carried out on over 100 mice, show that animals whose lymphocytes have been stimulated by dry heat have a much higher resistance to transplanted cancer than control mice inoculated with the same tumor. The general health of animals subjected to this treatment did not seem in the least affected. This difference in resistance was manifest both when the tumor inoculated gave a relatively low percentage of takes, and when the tumor was highly virulent and gave a high percentage of takes.

Lymphocytosis and Growth of Spontaneous Tumors in Mice.—Spontaneous cancers were removed from a series of mice by operation. The animals were then subjected to an exposure to dry heat at a temperature ranging from 55 to 63 C. for five minutes. Immediately afterwards a graft of the original tumor was returned. The mice so treated exhibited a marked increase in their resistance to the growth of the cancer graft, over 59 per cent. remaining entirely free from a return of the cancer. In a control series in which no treatment was given 96 per cent. of the animals showed a return of the cancer.

Lymphoid Tissue and Resistance to Experimental Tuberculosis in Mice.—Mice with high lymphocyte counts and increased activity of the lymphoid tissue induced by one exposure to intense dry heat exhibit a marked increase in the resistance to large doses of bovine tubercle bacilli as compared with that shown by control animals given a similar inoculation. This resistance, judged by the time of survival after inoculation, is increased from two to threefold.

Effect on Lymphocytes of Exposure to Sun.—Chronic solar dermatitis was accompanied, in twenty-five of thirty-eight individuals studied, by Taylor by an appreciable increase, percentage and absolute, in the number of circulating lymphocytes. In eight there was a definite decrease and in five no appreciable change after prolonged exposure to the rays of the summer sun. Of the thirteen subjects with no increase in blood lymphocytes, six failed to tan, three were so dark originally that to determine an increase was impossible, and five had an extremely high lymphocyte count at the first count. Blood counts on white persons living in the Philippines indicate that the blood lymphocytes are likewise increased after a prolonged period of residence in the tropical zone. Because of the parallelism between the tanning and the blood changes it seems probable that the lymphocytosis observed in the majority of instances, which is similar to the response of the blood of animals to small doses of the roentgen rays, is due to the effects of the ultra-violet rays contained in the solar spectrum.

Roentgen-Ray Effects on Blood Cells.—The authors found that roentgen rays in large doses affect the lymphocytes before any of the other circulating cells. There is a sharp fall in the total number of circuiating lymphocytes, which is complete forty-eight hours after roentgen-ray treatment. Following the immediate decrease in the circulating lymphocytes there is a primary rise, followed by another fall, which in turn is followed by a permanent rise of these cells to normal. The polymorphonuclear neutrophilic leukocytes, when affected at all, increase in number immediately after the administration of the roentgen rays and then tend to decrease below their normal level. This decrease is followed by a return to normal many days before the lymphocytes reach their original level. The other cells of the blood follow the neutrophilic curve.

Roentgen-Ray Effects on Lymphocytes.—Blood counts were made on nine rabbits after an exposure to roentgen rays of a seven-eighths inch spark-gap, milliamperage 25, distance from the target 8 inches, and time of exposure twenty minutes. In seven of the nine animals there resulted an increase of the circulating lymphocytes. In five of these the increase was marked and in two others definite but not striking. Of the two animals which showed no stimulation one showed marked fluctuation of counts both before and after roentgen rays and the other little or no change. The higher penetrating dose (6 inch spark-gap, milliamperage 5, distance from the target 10 inches, times twenty-six minutes and fifty-seven seconds) given to two animals produced no appreciable stimulation.

Roentgen-Ray Effects on Lymphoid Tissue.—The small dose of roentgen rays (spark-gap seven-eighths inch, milliamperage 25, ditance 8 inches, time twenty minutes) applied to the rabbit has no appreciable destructive effect on the lymphoid tissue. Indications of stimulation of the lymphoid tissue appear immediately after the treatment, become most pronounced in two (in lymph glands) to four (in the spleen) days, and persist, in a slight degree, up to the fourteenth day. These facts suggest that the lymphocytosis induced by the small dose of roentgen rays is due to a primary stimulative effect on the lymphoid tissue of the animal.

Roentgen-Ray Effects on Tumor Cells.—The direct action of roentgen rays in more powerful doses than can be applied therapeutically the authors found to be somewhat injurious to tumor cells, but by no means destroying them. In fact, the cancer cells establish a resistance to the roentgen rays after repeated doses. This harmonizes with the experience of clinicians who have succeeded in checking cancerous growths for some time but reach a point where no response can be effected by repeated doses. The rays of low pene-

tration are apparently more harmful to tumor cells than the more penetrating rays.

Blood Counts in Experimental Poliomyelitis.—Blood counts were made on six series of monkeys before and at various intervals after the injection of active poliomyelitic virus. From the data thus obtained the variations in the circulating white cells have been followed in the several stages of the disease (*a*) before injection, (*b*) during the incubation period, (*c*) during the acute stage, including the stage of prostration, and (*d*) during recovery. Averages of 121 counts on forty normal monkeys are recorded. Immediately following the injection of the virus the relative and actual numbers of lymphocytes are slightly diminished. In many cases the curve continues sharply downward. In others from the fourth to the sixth day there is an actual increase for a brief period to a point somewhat in excess of the original count. With the onset of symptoms a lymphocytic crisis takes place. The curve then continues slightly downward, while the polymorphonuclear neutrophilic leukocytes are relatively and actually increased to approximately the same time. During the stage of prostration the curve of the polymorphonuclear neutrophilic leukocytes returns to almost normal, while the lymphocytic curve continues slightly downward. With recovery the lymphocytes slowly return to normal after several weeks. There is no evidence of lymphocytic stimulation after recovery. Eosinophilic, basophilic, large mononuclear, and transitional leukocytes follow the depressions and stimulations exhibited by the neutrophilic cells of the same series. These results are consistent with the observations of Peabody, Draper and Dochez on human cases. The increase in the total number of circulating lymphocytes after the lymphocytic crisis is coincident with the passing of the acute stage. Additional evidence is presented to indicate that Smillie produced atypical but definite poliomyelitis in the monkey with cultivated virus.

Effects of Roentgen Rays on Poliomyelitis.—In two series of the experiments here recorded the monkeys which had been repeatedly exposed to roentgen rays responded with typical acute poliomyelitis to an intracerebral inoculation of poliomyelitic virus filtrate, whereas, the normal control receiving the same dose showed no symptoms. In another series the roentgen-rayed animal came down with typical poliomyelitis after inoculation with three fourths of the dose which was not infective for the control. It has been demonstrated that roentgen rays diminished both the number of circulating lymphocytes and the resistance of the animal to the weak poliomyelitic virus. Whether the lowered resistance of the animals as the result of the treatment with roentgen rays is due to the reduction of circulating lymphocytes in each of the roentgen-rayed monkeys is not determined in these experiments. However, the great reduction in lymphocytes in human cases and in monkeys during the acute stage of experimental poliomyelitis and the gradual return of the cells to their former numbers during recovery strongly suggest a definite relation between these cells and one factor of resistance in poliomyelitis. On the other hand, the reduction in resistance by roentgen rays, while definite, is not sufficiently great to warrant the conclusion that we are dealing with major factors governing infection or noninfection. Another experiment in this paper deals with the survival of a subinfective dose of the virus in the normal monkey brain. A monkey receiving the subinfective dose of the virus was exposed to roentgen rays at twenty-eight days, another at fifteen days after injection, but neither animal showed symptoms of poliomyelitis. It is concluded that within this period the virus did not remain unchanged in the normal monkey brain. An attempt to reduce the immunity in a monkey acquired by an attack of experimental poliomyelitis was unsuccessful.

Action of Chlorinated Antiseptics.—This work demonstrates that the chlorinated antiseptics have no power to penetrate blood clots and destroy bacteria therein contained. Correspondingly, blod clots may protect virulent bacteria for a long period of time and the organisms properly planted will be able to proliferate in a normal manner. The authors used neutral solution of chlorinated soda, chloramine-T solution, calcium and sodium chlorid and eusol.

Kentucky Medical Journal, Bowling Green

January, 1919, **17**, No. 1

Rabies. S. Graves.—p. 6.
Id. Report of Case. B. Vaughan.—p. 15.
Fistula in Ano. W. E. Reynolds.—p. 18.
Present Medical Fees Inadequate. D. E. McClure.—p. 21.
Four Cases of Fracture of Femur Treated by Open Operation. W. B. Owen.—p. 22.
Obstetrical Cases. E. Speidel.—p. 24.
Electrical Accidents. J. H. Hendren.—p. 26.
Joint Lesions Following Focal Infections in Children. J. D. Trawick.—p. 30.
Case of Cholecystitis. A. W. Nickell.—p. 32.
Carcinoma of Penis. J. R. Wathen.—p. 33.
Sarcoma of Ovary. M. Casper.—p. 35.
Use of Esophagoscope and Bronchoscope. G. C. Hall.—p. 36.
Diaphragmatic Hernia. Report of Case. C. Weidner, Jr., and C. Weidner, Sr.—p. 42.
Workingman's Hand. The Frequency of Its Injury and the Cause of Bad Results. C. G. Forsee.—p. 44.

Medical Record, New York

Jan. 18, 1919, **95**, No. 3

Experimental Evidence as to Immunity From Tuberculous Infection. G. E. Bushnell.—p. 89.
Splenic Reflexes of Abrams in Treatment of Syphilis. A. Abrams.—p. 96.
*Breathing Gymnastics for Marching Soldier. N. J. P. Van Baggen.—p. 101.
Pneumonia, Acute Empyema, Acute Appendicitis, Pneumococcus Peritonitis. Their Differential Diagnosis. M. Behrend.—p. 102.
Chlorin, Dichloramine-T, and Catgut. R. F. Ofrias.—p. 104.

Breathing Gymnastics for Marching Soldier.—Van Baggen advocates breathing gymnastics for the marching soldier for the purpose of developing the chest, strengthening the muscles of the thorax, and fortifying action on the pulsation of the heart because they are evidently of great advantage for those who are obliged to exert their physical capacities to the utmost. Moreover, control over the breath, which means the regulation of inspiration and expiration, is most valuable while walking, marching, running, and, in general, while performing any bodily exercise. It has been found also that the exercises have an excellent influence on the correct erect bearing of the men.

Mental Hygiene, Concord

October, 1918, **2**, No. 4

War Neurosis and Military Training. W. H. R. Rivers.—p. 513.
Registration of Feebleminded. G. A. Hastings.—p. 534.
Psychiatric Aims in Field of Criminology. B. Glueck.—p. 546.
First Ten Years of National Committee for Mental Hygiene; Its Future. L. F. Barker.—p. 557.
Training School of Psychiatric Social Work at Smith College. W. A. Neilson.—p. 583.
A Lay Reaction to Psychiatry. E. E. Southard.—p. 584.
Course in Social Psychiatry. E. R. Spaulding.—p. 586.
Scientific Basis for Training Social Workers. F. S. Chapin.—p. 590.
Emergency Course in a New Branch of Social Work. M. C. Jarrett.—p. 593.
Vagrancy. A. T. Baker.—p. 595.
Suggestions in Nomenclature of Feeblemindedness. E. E. Southard.—p. 603.
Valid Uses of Psychology in Rehabilitation of War Victims. D. S. Hill.—p. 611.
Personality Studies and Personal Equation of Aviator. S. Paton, W. Maclake, and A. S. Hamilton.—p. 629.

Michigan State Medical Society Journal, Grand Rapids

January, 1919, **18**, No. 1

Roentgenography to Determine Size of Heart. A. W. Crane.—p. 1.
Ethics. R. H. Spencer.—p. 2.
Six Hundred and Thirty-Eight Herniotomies. W. T. Dodge.—p. 6.
Peace and War in Human Organism. F. McD. Harkin.—p. 8.
Field of Local Anesthesia in a War Hospital. L. J. Hirschman.—p. 12.
Case of Congenital Ptosis. H. L. Begle.—p. 13.
Epidemiology and Treatment of Amebic Dysentery. Report of Two Cases. G. R. Herrmann.—p. 15.
*Operation for Prolapse of Rectum. H. deB. Barss.—p. 19.
Production of Chronic Nephritis Through Feeding High Protein Diets. L. H. Newburgh.—p. 21.

Operation for Prolapse of Rectum.—The method used by Barss, but not original with him, consists in making small puncture incisions about half an inch from the anal margin—one anteriorly, one posteriorly, and one on each side. Through these small cuts scissors are introduced and blunt dissection conducted beneath the skin so as to connect each puncture,

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and thus make a complete subcutaneous ring around the anus. Through the anterior puncture silver wire (gage 19) is threaded on each side, the two ends appearing through the posterior cut. The wire is then drawn up and twisted so as to contract the anal opening to a size which will just admit freely the index finger. The ends are twisted, the excess wire cut and the ends tucked beneath the skin. The punctures are so small that sutures are not needed. The wire is completely buried. A sterile pad is the only dressing applied.

Minnesota Medicine, St. Paul

January, 1919, **2**, No. 1

Treatment of Peptic Ulcer by Gastro-Enterostomy. C. H. Mayo.—p. 1.
Operation for Senile Cataract. F. Allport.—p. 5.
*Paraffin Treatment of Burns. A. N. Collins.—p. 8.
One Hundred Per Cent Recoveries in Cerebro-Spinal Meningitis. H. W. Hill.—p. 12.
Electrocardiograph in Diagnosis of Heart Diseases. O. S. Hansen. —p. 17.
Iritis. J. H. James.—p. 18.
Relation of Labyrinth Disturbances to General Symptomatology. H. A. Beaudoux.—p. 22.

Paraffin Treatment of Burns.—Abstracted in THE JOURNAL, Sept. 21, 1918, p. 1002.

New Jersey Medical Society Journal, Orange

January, 1919, **16**, No. 1

Laboratory Findings: Their Proper Interpretation. O. Lowy.—p. 1.
Meningitis. H. I. Goldstein.—p. 3.
Needed Reforms in Public Health Work. M. N. Baker.—p. 4.

New York Medical Journal

Jan. 18, 1919, **109**, No. 3

Mouth Infection. O. T. Osborne.—p. 89.
Influenza. A. H. Wright.—p. 91.
Alcoholism and Phantasy Life in Tolstoi's Drama "Redemption." S. E. Jelliffe and L. Brink.—p. 92.
Development of Consciousness. H. J. Mulford.—p. 97.
*Peanut Bronchitis. E. J. Patterson.—p. 101.
*Pulmonary Tuberculosis and Insanity. I. J. Sands.—p. 103.
Borderline Gastric Disease. M. Kahn.—p. 105.
Gunshot Wounds of Bladder. C. G. Cumston.—p. 109.

Peanut Bronchitis.—Cases are cited by Patterson to illustrate the characteristic train of symptoms which follow the inspiration of fragments of peanut into the respiratory tract and which continue until the fragments have been removed bronchoscopically or evacuated spontaneously and the pus which follows its sojourn in the bronchus has been evacuated bronchoscopically.

Pulmonary Tuberculosis and Insanity.—Among 962 necropsies performed at the Manhattan State Hospital, in 131 cases, or 13.61 per cent., the lesions of active pulmonary tuberculosis were found. In 107 cases, or in 11.12 per cent., a clinical diagnosis of pulmonary tuberculosis was ventured, while in eighty-one out of the 107 cases, or 76.35 per cent., the diagnosis of pulmonary tuberculosis was corroborated at postmortem examination and in twenty-six of the 107 cases, or 23.65 per cent., no corroborative evidence of tuberculosis was found at necropsy. Of the 131 cases of active pulmonary tuberculosis found at necropsy, eight-one, or 61.83 per cent., were correctly diagnosed antemortem, and fifty, or 38.17 per cent., were not clinically suspected as tuberculous. Sands says that psychoses among tuberculous patients are infrequent and are, usually, either of the infective toxic type of reaction, or shown by the manic depressive behavior. Psychoneurosis, especially of the neurasthenic and of the spychasthenic types, is quite prevalent among tuberculous patients. The general therapeutic principles employed in the treatment of tuberculosis are equally applicable in the insane as in the mentally sound patients afflicted with the disease.

Ohio State Medical Journal, Columbus

Jan. 1, 1919, **15**, No. 1

Group Examination for Intelligence Rating in Army. T. H. Haines. —p. 6.
Chronic Prostatitis. A. W. Nelson.—p. 8.
*Cancer of Skin. C. F. Bowen.—p. 11.
Repair of Old Lacerations of Genitalia During Lying-In-Period. J. L. Bubis.—p. 14.
Relation of Throat and Mouth Conditions to General System. W. W. Pennell.—p. 15.

Cure of Cancer of the Skin.—Bowen believes that every case of cancer of the skin can be cured, and perhaps prevented, but whether or not any individual case is cured, depends on how soon a correct diagnosis is made, on how soon proper treatment is begun and on the thoroughness of the treatment. Small lesions can be removed by caustics, fulgeration, roentgen ray, radium or operation. The larger lesions can be removed by fulgeration, roentgen ray, surgery or a combination of these methods. No single method will suit all cases, but with the proper selection of methods at our disposal Bowen says "nearly" every case of skin cancer can be cured permanently.

Oklahoma State Medical Association Journal, Muskogee

January, 1919, **12**, No. 1

Accessory Sinuses of Nose. R. O. Early.—p. 1.
Operations on Nasal Septum. H. C. Todd.—p. 4.
Significance of Pain in Ear. J. H. Barnes.—p. 7.
Keratoconus. W. T. Salmon.—p. 10.
Eye Strain as Factor in Gastric Neuroses. A. C. McFarling.—p. 13.

Southwestern Medicine, El Paso

December, 1918, **2**, No. 12

Vagotonia. G. Werley.—p. 1.

War Medicine, Paris

October, 1918, **2**, No. 3

Surgery in Battle Areas. G. W. Crile.—p. 293.
*Prevention of Acute Respiratory Affections. W. W. O. Beveridge. p. 300.
*Acute Respiratory Infections Among Colored Troops in French Army. Borel.—p. 306.
*Experiences of American Expeditionary Forces with Respiratory Infections. H. Emerson.—p. 311.
*Acute Respiratory Infections: Pneumonia. H. Zinsser.—p. 316.
Field Sanitation. Methods of Feces Disposal and Fly Prevention in French Army. O. Monod.—p. 324.
Disposal of Feces and Fly Prevention in British Army. F. P. Joscelyne.—p. 327.
Feces Disposal and Fly Prevention in a Division. J. W. Gressinger. p. 333.
Feces Disposal and Fly Prevention in a Base Section. H. C. Coburn —p. 339.

Prevention of Acute Respiratory Affections.—During the period prior to the war Beveridge says accommodation in barracks and hutments in Great Britain was provided on the scale of 60 square feet or 600 cubic feet per man. On the outbreak of the present war the great influx of recruits necessitated a somewhat less generous provision, and having regard to military exigencies, 40 square feet or 400 cubic feet was fixed as the minimum accommodation which could safely be permitted in quarters. This has since come to be regarded as a war time standard. The distance between beds is of paramount importance and quite a moderate degree of "spacing out" of beds combined with simple methods for improving ventilation is highly effective in reducing carrier rates. Infectious diseases affecting the respiratory passages are largely spread by "spraying" from the nasal and buccal orifices of infected persons, so that the chances of a healthy person in the neighborhod becoming infected increase enormously the nearer such a person is to an infected individual. In addition, inadequate ventilation permits of a great concentration of infective material in the surrounding air which increases the chances of transmission of infection.

The important elements in "overcrowding," so far as the spread of infectious disease affecting the respiratory passages is concerned, are, therefore, proximity of heads and defective ventilation. Ventilation may be improved within the limits short of creating a draught, but satisfactory results can only be expected when close proximity of heads is also prevented. Proximity of heads and degree of ventilation are, therefore, the criteria by which the adequacy of accommodation should be judged.

In calculating cubic space in quarters, heights above 10 feet are neglected as not contributing useful space so far as the prevention of true overcrowding is concerned. In hutments the cubic space above 10 feet from the floor is usually relatively small and for practical purposes may be neglected. On this basis the floor space expressed in square feet is numerically one tenth of the cubic space, so that accommodation may, for simplicity, be expressed in terms of square feet of

floor space. Where huts are about 20 feet wide, as is commonly the case, and men sleep down each side of the linear wall, space per man is numerically a tenth of the floor space per man and affords a ready and rapid guide as to the sufficiency of accommodation. In ordinary hutments, therefore, 400 cubic feet, or 40 square feet of floor space, or 4 linear feet of wall space per man, may be regarded as affording the same accommodation. Accommodation in tiers is not recommended where it can be avoided; it may be necessary in forward areas but in no case should more than two tiers be countenanced unless for very short periods and on grounds of military urgency. In ordinary hospitals 60 square feet of floor space with 6 feet of wall space per patient is provided, but during periods of pressure this may have to be reduced to 5 feet of wall space. In hospitals for infectious disease 100 square feet of floor space is allowed.

Protection against cold and inclement weather in the shape of warm and waterproof clothing has a marked effect in preventing a lowering of resistance, and in this connection the importance of providing efficient drying rooms at all camps and billeting areas cannot be overemphasized. Such drying rooms may be heated by coke or coal stoves, or the heat from incinerators may be utilized. In order to maintain resistance to disease and to mitigate its severity when contracted, a sufficiency of good and well-cooked food is essential.

Acute Respiratory Infections Among Colored Troops in French Army.—Borel's observations show that among the French black colonial troops acclimatization and vaccination were the two factors of value in producing immunity against pneumonia. Seven thousand men, who had already been acclimated for two or three years, were immune to such an extent that only two deaths resulted from pneumonia. Senegalese who had been in contact with the pneumococcus for one year and who had gone through epidemics at the time of their arrival in France were, it appears, spontaneously vaccinated. A colored contingent of 600 men, who arrived in the midst of an epidemic of pneumonia was vaccinated and apparently with perfect result.

Experience of American Expeditionary Forces with Respiratory Infections.—Of the 1,613,500 days lost in the American Expeditionary Forces up to June 1, 1918, from all causes—sickness, accident, injury in action and other traumatisms—Emerson finds that 1,481,000 days, or 91.78 per cent., were lost because of sickness. Of the total loss of days due to hospitalization from sickness 631,226 days, or 42.61 per cent., were due to eleven communicable and respiratory infections, the average number of days lost for each case of the diseases, respectively, to be as follows: pneumonia (lobar), 22.7 days; meningitis (meningococcus), 20.7 days; scarlet fever, 14.8 days; mumps, 12.0 days; pneumonia (broncho), 11.7 days; measles, 10.3 days; diphtheria, 7.2 days; bronchitis (acute), 6.3 days; pharyngitis (acute), 4.3 days; tonsillitis (acute), 4.1 days; influenza, 3.4 days. Among the causes which are known to have contributed to the high incidence of the diseases in question are crowding in camps, in trains, on transports, at ports of embarkation and in barracks; exhaustive drilling, working and sleeping in wet clothing and shoes; eating of food served cold, insufficient blankets for warm sleeping; habitual neglect of open window ventilation of barracks; spitting promiscuously and failure to protect the nose and mouth when coughing and sneezing among groups of men.

Acute Respiratory Infections.—To prevent pneumonia of the lobar type, Binsser says one must not only prevent contact but remember that the most important thing is to avoid reduction of that resistance which naturally is very high in all human beings, and that one is dealing with a matter which requires careful hygiene and sanitation. The most important of all is the question of ventilation and air space. The normal resistance of a human adult is much less complete against streptococcus infections than against pneumococcus infections. In an epidemic of 701 cases of pneumonia, 389 patients did not have measles. Of these ninety-three died. The death rate of primary pneumonia was 12 per cent., and the death rate of cases following measles was 29.8 per cent.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 21, 1918, **2**, No. 3025

Early History of Army and Navy Medical Service. A. Chaplin.—p. 675.
*Bone Grafting in Gunshot Fractures of Jaw. W. Billington.—p. 679.
*Influenza: Its Cause and Prevention. W. F. Robertson.—p. 680.
Blood Agglutinins in Meningococcal Attacks. I. W. Hall.—p. 681.
Nitrous Oxid and Oxygen in Combination with Ether or C. E. Mixture for Nose and Throat Operations. H. E. G. Boyle.—p. 684.
Historical Account of Tonsillectomy. E. E. V. Glover.—p. 685.
Operating to the Clock. J. O'Conor.—p. 685.

Bone Grafting in Gunshot Fractures of Jaw.—The authors are opposed to fixing bone grafts or fragments by plates and screws, by wiring, or even by dovetailing the graft into the fragments, because the presence of foreign bodies greatly militates against successful healing, a sinus down to the plate or wire almost invariably forming. Their practice now is to keep the graft in place by sewing the soft tissues closely over the graft and the ends of the fragments by hardened catgut. This has the additional advantage of closely surrounding the graft with living vascular tissue and abolishing dead spaces in which blood clot and serum can collect. This improves the nutrition of the graft and diminishes the risk of sepsis. The skin is approximated with a few interrupted stitches. No drainage is employed beyond that of leaving spaces between the skin sutures to allow the escape of serum. A simple dressing and bandage is applied.

Use of a Vaccine Made from Influenza Bacillus.—Over 100 cases of chronic infection by the bacillus of influenza have been studied by Robertson. In nearly all of these cases therapeutic immunization has been carried out. The focal and general reactions produced, and the successful therapeutic results that have been obtained Robertson regards as being consistent only with the view that the bacillus from which the vaccines were prepared was the chief cause of the catarrhal conditions from which the patients were suffering. Correct therapeutic doses commonly caused distinct focal reactions; overdoses were followed by the development of symptoms simulating those of influenza. A continuation of correct therapeutic doses over a period of from six to ten weeks almost uniformly resulted in complete recovery from the malady. If the bacillus of influenza had not been the chief cause of the ailment, the author is convinced that these results could not have been obtained.

In the treatment of acute influenza, therapeutic immunization acts, in Robertson's experience, with equal success. A dose of 0.02 mg., repeated after twenty-four hours, generally causes the temperature to fall to normal within forty-eight hours. It is of advantage to use sensitized vaccines in acute cases. For the purposes of the preparation of these sensitized vaccines, two sheep are kept immunized against bacillus influenza. The administration of a sensitized vaccine is followed by comparatively little reactive disturbance. Robertson believes that the most convincing evidence of the causal relationship of Pfeiffer's bacillus to influenza can be obtained from the phenomena that may be observed in the carrying out of the protective inoculation. He made a number of these inoculations at the time of the summer epidemic; none of the persons contracted influenza. Robertson gives at intervals of from two to three days, successive doses of about 0.03 mg., 0.06 mg. and 0.12 mg., or two doses of 0.04 mg. and 0.12 mg. The smaller doses are given first in order to create a certain degree of tolerance of the toxin before the full dose required for complete protection is injected, and to provide against the possiblity of hypersensitiveness, which occurs in all persons who are suffering from a chronic infection by the bacillus. After each of these doses most persons within twelve to twenty-four hours experience in mild degree the symptoms of influenza. If the dose of 0.12 mg. is given at once, severe disturbances are generally experienced.

Journal of Laryngology Rhinology and Otology, London

December, 1918, **33**, No. 12

Classification of Syndromes of Associated Laryngeal Paralysis. M. Vernet.—p. 354.
*Schultze's Monochord. W. M. Mollison.—p. 365.
Cholesteatoma of Lateral Pharynx. J. J. Kyle.—p. 366.

Schultz's Monochord for Testing Hearing.—Recently the Otological Section of the Royal Society of Medicine approved a "standard" scheme for the testing of the hearing; in that scheme the determination of the range of hearing was included, and it was suggested that Galton's whistle or the monochord should be used to investigate the upper limit of the range. Mollison endeavors to establish the claims of the monochord over the Edelmann-Galton whistle, as an instrument of greater precision. The monochord consists essentially of a steel wire stretched between projections at either end of a steel bar; on the bar is a "bridge" which grips the wire and thus can vary the effective length of wire; for convenience the bar is provided with a handle. In practice the wire is 50 cm. long, and the bar is marked off in centimeters; this length of wire does not give low enough notes for all cases; to meet this a longer frame can be made. The wire is a steel wire (a "banjo wire") gage 26. The notes are produced by rubbing the wire in its length with a piece of wool soaked in methylated spirit or turpentine; the wool is held between the finger and thumb, and the wire pinched while the wool is pulled along the wire. An alternative method is to use a piece of chamois leather coated with powdered resin, but this is not quite so easy to use. For the highest notes a short, hard rub is best, for lower notes a lighter rub, and one on that part of the wire nearer the bridge gives a clearer and cleaner note. It is easier to produce clear notes with a heavy frame. The advantages of this instrument are said to be: (1) It is easily standardized. (2) It is simple to use. (3) By placing the support of the wire on the mastoid process the upper tone limit through bone can be tested.

Lancet, London

Dec. 21, 1918, **2**, No. 25

*Lethargic Encephalitis. E. F. Buzzard.—p. 835.
Lethargic Encephalitis in England. S. P. James.—p. 837.
Mass-Reflex in Injuries of Spinal Cord. G. Riddoch.—p. 839.
*Blood Pressure and Physical Fitness of Soldier. V. E. Sorapure.—p. 841.
*Complement-Fixation Test in Tuberculosis. E. Fidlar.—p. 844.
Acute Poliomyelitis in Infant 12 Days Old with Extensive Paralysis and Recovery. T. H. Gunewardene.—p. 847.
Primary Nocardiasis of Lacrymal Gland. J. B. Christopherson.—p. 847.

Dec. 28, 1918, **26**, No. 2

*Bacteriology and Pathology of Influenza. H. E. Whittingham.—p. 865.
Severe Cases of Influenza Occurring During Present Epidemic. T. Horder.—p. 871.
*Vaccines in Acute Influenza. W. H. Wynn.—p. 874.
*Recent Influenza Epidemic. D. T. Harris.—p. 877.
Aspects of Long-Standing Pulmonary Tuberculosis. C. D. Wood.—p. 877.
Case of Bence-Jones' Albumosuria with Lymphocytic Leucocythemia. H. L. Heimann and C. B. Wilson.—p. 879.

Lethargic Encephalitis.—Buzzard calls attention to the fact that there is a form of encephalitis which has the constitutional disturbances, the age incidence, the seasonal exacerbations, the sporadic and epidemic types and the immunity from second attacks which are shared by measles, scarlatina, and other acute specific fevers, and that it presents an inflammatory lesion of a particular tissue in the same way as typhoid, diphtheria and smallpox display inflammatory lesions of other tissues. This form of encephalitis has been shown to be due to the virus of poliomyelitis and it should be noted that the disease is an acute one running its course in a few days, but often leaving permanent results in the form of paralysis, mental defects and epilepsy. Lethargic encephalitis, which has attracted notice this year is a distinct disease of a second group. In a third group of cases the force of the inflammation is spent on the cerebral cortex, and gives rise to considerable difficulty in diagnosis, especially in regard to the possible presence of cerebral tumor, cerebral abscess, or cerebral hemorrhage.

Buzzard cites four cases belonging to this group. All four patients were over 40 years of age, but none of them presented cardiovascular changes suggesting the possibility of cerebral hemorrhage as a diagnosis. In none of the four cases did the clinical history conform closely to that of cerebral hemorrhage, but suggested some more subacute lesion, and naturally gave rise to the question of abscess or syphilitic thrombosis. In all four cases the Wassermann reaction of the cerebrospinal fluid was negative. The lesson to be learned from the experience is that patients over 40, and even over 50 years of age may be the victims of encephalitis, producing the general symptoms of hemiplegia, aphasia, hemianesthesia, or hemianopia. In the second place, a naked eye examination of a brain on a postmortem table is not sufficient to discriminate between an ordinary cerebral hemorrhage and a hemorrhage which is only an accidental occurrence in the course of an encephalitis. When there are no obvious gross signs of disease in the cerebral arteries to account for a hemorrhage, it is essential that microscopic investigation should be carried out in order to determine the cause for the blood extravasation. Third, the presence of thrombosed cortical veins associated with hemorrhage in the neighboring brain substance is strongly indicative of an inflammatory process.

Blood Pressure and Physical Fitness of Soldier.—Sorapure suggests that the presence and relative lengths of the various phases ordinarily recognized between the systolic and diastolic pressures is of wider clinical significance than the height of the systolic pressure alone, or even that of the systolic and diastolic readings compared. He claims that it is quite a common experience to find an obviously inefficient heart giving what is accepted as a normal systolic and diastolic blood pressure reading. He has never seen a case such as this which showed all the phases in anything like the suggested normal proportion. An analysis of the blood pressure findings in a group of 769 soldiers (Guardsmen) during the twelfth week of training, showed that the most constant factor, the diastolic pressure, is for all ages somewhere between 70 and 90; that the systolic pressure should be about 50 or 60 per cent., higher than this; that the range of pressure between the two should be capable of differentiation into three different phases—the first, or first tonal, being 20 per cent. of the whole; the second or murmur phase, 40 per cent., and the third, or second tonal, 40 per cent. These findings are characteristic of the fit man.

An analysis was made of a group of 189 men, all of whom had been invalided home from abroad, but included none of organic heart trouble. Practically all showed, or had showed, evidence of autonomic disturbance of the cardiovascular mechanism (D. A. H.). Certain features in the group stand out clearly: (1) The very high percentage of the men who do not show all the phases and the greater instability of the diastolic pressure. (2) That even those who showed all phases show quite a remarkable variation in the relative proportion of these as compared with the first group. The best groups in this table, namely, ages 29 and 36, compare most unfavorably with the worst groups of the first table, namely, ages 37 and 39. The conclusions are: (*a*) that the men who are less efficient than normal do not show the characteristic phases which prevail in the first group; (*b*) that those who are physically fit show these phases in the majority of readings; (*c*) that the result of this simple test is a factor worth considering in estimating the physical capacity of an individual.

Complement Fixation Test in Tuberculosis.—The percentage of positive reactions obtained by Fidlar in his investigation in active pulmonary tuberculosis was about 75.5. The strong reactions occurred most frequently, as would be expected, in active tuberculosis, 35 per cent., in incipients, 37 per cent., in the moderately advanced, 48 per cent., in the advanced. Of 215 clinically nontuberculous cases the fixation test was positive in 21.8 per cent. Eight per cent. of the cases of tuberculosis gave a positive Wassermann, hence the proportion among tuberculous soldiers is practically not greater than occurs in the civilian population.

Bacteriology and Pathology of Influenza.—Over 100 patients were examined by Whittingham and Sims as regards the micro-organisms present in the posterior nasal swabs and sputum. The urine of these patients was also examined on several occasions. Blood cultures were performed on only the first fifty cases. The results show that there is septicemia in some of the cases. Most of these have a fatal issue. It was impossible to state definitely whether this septicemia is present early in the disease or only as a late symptom. That it is a late symptom is borne out by the fact that strepto-

cocci were isolated from the heart's blood after death in cases where the blood culture was negative early in the disease. The causal micro-organism of the septicemia is not the same in all cases. The examination of sputum and posterior nasal swabs showed a mixed and fairly constant flora. Such organisms as streptococcus, pneumococcus, *M. catarrhalis* and *B. influenzae* were present in a high percentage of cases; in all instances over 66 per cent., except in that of *B. influenzae* (46 per cent.). The predominating organism varies, being: *M. catarrhalis* in 34 per cent., streptococcus in 30 per cent., pneumococcus in 26 per cent., *Staphylococcus aureus* in 8 per cent., and *B. influenzae* in 2 per cent. of the cases. In only one of this series of cases was Pfeiffer's bacillus found to be the predominating organism.

Postmortem examinations showed lung lesions in all cases, varying from congestion and edema to pneumonia and pus formation. Invariably the picture was that of a marked toxemia, e. g., congestion and petechial hemorrhages of serous and mucous membranes, cloudy swelling and fatty changes of liver, kidney and cardiac muscle, and in two an acute nephritis. The micro-organisms isolated from lung, pleural and peritoneal lesions, blood and spleen coincide closely with the mixed flora obtained before death. Only in one case was the *B. influenzae* found in the lesions. Isolation of diplostreptococci from the heart's blood and spleen postmortem supports the view that a true septicemia is present.

The daily leukocyte counts show that all cases do not conform to one type. Broadly speaking, a leukopenia, if continued, is of bad, a leukocytosis of good, prognostic import. A marked leukocytosis after the eighth or ninth day, especially if the eosinophils are much decreased or absent, strongly suggests complications. Incomplete recoveries and the oncoming of a relapse can often be diagnosed from the blood picture, even when the clinical signs are slight or absent.

Prophylactic vaccination on two preferably on three, occasions with a weekly interval between each inoculation is without risk, increases the immunity of the individual, and prevents the onset of pulmonary complications. Should the inoculated develop influenza, the course of the disease is invariably mild.

As regards treatment, the authors recommend that: (1) In very early cases a full dose of prophylactic vaccine should be administered. No further doses to be given, at least for several days. (2) Cases can be seen on the first day, or later, provided the temperature falls to normal, unless symptoms become worse. (3) Those cases which show high pyrexia or toxic condition from the start should be treated with polyvalent antistreptococcus serum, 20 c.c., administered subcutaneously as soon as possible, and followed by daily injections of 10 c.c. for three or four days. With this treatment calcium lactate, 5 grains, should be given daily for seven to ten days to ward off serum sickness. Vaccine may be combined with this, if required. Other forms of treatment may be combined with the above.

Vaccines in Acute Influenza.—Admitting that it may be argued that vaccine has no curative action in acute diseases, Ynn is convinced from a study of his cases that, at least, it does no harm. A constant feature has been the drop in temperature following an injection. In acute lobar pneumonia the respirations are slowed pari passu with the temperature and pulse. In influenzal bronchopneumonia, if the respirations are rapid they are slowed with the fall of temperature, but in the serious cyanotic cases with slow respirations, the rate is increased. At first the respiratory center is depressed, but with improvement come stimulation of the center before it returns to normal. The results obtained in influenzal bronchopneumonia are similar to the results obtained for several years in acute lobar pneumonia and other types of bronchopneumonia.

Bacteriology of Recent Influenza Epidemic.—Cultural examination of the aseptically obtained lung juice from a case of "influenza" eight hours after death gave an organism resembling *B. pestis* in appearance and staining characters, but isolation and growth are far more difficult than with *B. pestis*. The same organism was isolated from the throats of "carriers"; in two cases of death from this "influenza" the Klebs-Loeffler bacillus was recovered from the lung. Aphonia had been a symptom in one of these cases.

Seale Hayne Neurological Studies, London

July, 1918, **1**, No. 1

Pharyngeal Anesthesia. A. F. Hurst and J. L. M. Symns.
Signs and Symptoms of Malingering, Hysteria and Organic Nervous Disease. A. F. Hurst.—p. 7.
Narrow and Spiral Fields of Vision in Hysteria, Malingering, and Neurasthenia. A. F. Hurst and J. L. M. Symns.—p. 15.
Supposed Association of Hysterical Anesthesia of External Ear with Hysterical Deafness. A. F. Hurst, J. L. M. Symns and R. Gainsborough.—p. 19.
New Group of Hysterical "Stigmata." A. F. Hurst and J. L. M. Symns.—p. 21.
Hysterical Romberg's Sign. A. F. Hurst and S. H. Wilkinson.—p. 24.
Rapid Cure of Hysterical Symptoms in Soldiers. A. F. Hurst and J. L. M. Symns.—p. 27.
War Contractures—Localized Tetanus, A Reflex Disorder, or Hysteria. A. F. Hurst.—p. 43.

Tropical Medicine and Hygiene, London

Dec. 16, 1918, **11**, No. 24

Blood Parasites. F. G. Cawston.—p. 241.

Archives des Maladies du Cœur, etc., Paris

November, 1918, **11**, No. 11

*Traumatic Obliteration of Arteries. Babinski and Heitz.—p. 481.
*Hypertrophy of Heart in Aviators. G. Etienne and G. Lamy.—p. 510.

Traumatic Obliteration of Arteries.—Babinski and Heitz tabulate the details of 106 cases of obliteration of an artery from a war wound, classified according to the artery involved and outcome of the case. If the limb is immersed in a hot bath for a certain length of time, the oscillometer findings come to approximate those on the sound side if the obstruction to the flow of blood is merely a vasomotor phenomenon. There is no change in the findings under the hot bath test if there is actual obliteration. Collateral circulation may in time overcome the effects of the obliteration. A difference of more than 1.5 cm. mercury between the systolic pressure on symmetrical points in the two limbs is pathognomonic of obliteration of a main artery if an aneurysm can be excluded and the limb is normally developed. In certain rare cases the circulation several months and years later finally approximated normal, but in a larger number two years later there is still a difference of from 3 to 6 cm. mercury between the pressures. The majority are between these extremes. In a large proportion of the total cases the obliteration was the result of a ligature applied to the artery to arrest hemorrhage.

Hypertrophy of Heart in Aviators.—Summarized, Oct. 26, 1918, p. 1442, and Dec. 21, 1918, p. 2110.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

July to September, 1918, **7**, No. 7 to 9

*Wedge Excision of Uterus. R. d'Ernst.—p. 161.
*Placenta Praevia. A. Boquel.—p. 190.
*Curvature of Spine in the Newborn. G. Geffray.—p. 200.
Obstetrics in Older French Literature. M. Boutarel.—p. 212.
*Transfusion of Blood in Obstetrics. A. C. Guillaume.—p. 217.

Conservative Surgery of the Adnexa.—D'Ernst states that time enough has now elapsed since Beuttner in 1908 first applied his transverse wedge excision of the uterus for removal of diseased adnexa for its advantages to be thoroughly established. Recent reexamination of the forty cases in which the method was applied between 1908 and 1914 shows highly satisfactory results, both immediate and remote; menstruation was not interfered with and there has been no return of genital disturbances and nothing to suggest the premature menopause. The various steps of the operation are shown in seven plates. The method is designed for young women as it aims to leave most of the uterus and at least one ovary or part of one. The transverse laparotomy and preventive ligation of the uterine and ovarian arteries are followed by the excision of a transverse wedge in the fundus of the uterus. This wedge represents the continuation across the uterus of the axial line of the adnexa. When the wedge has been excised, it is cut in two along the median line, and

the two halves are turned back on each side, and the lips of the gap in the uterus are sutured together. After this, the adnexa are removed as indicated, but always with care to leave one or part of one ovary. A somewhat similar method was published by Blair Bell in 1913, but it does not include the hemisection of the excised transverse wedge, while Beuttner regards this as important as it permits access to the adnexa from the median line outward and from below upward. There were five deaths in this series of forty but the cavity of the uterus could not be incriminated in any instance; in one case the simultaneous appendicectomy was evidently a factor in the fatal outcome. In the others the extent of the inflammatory lesions or a cureting done shortly before, or the clandestine use of liquor was evidently responsible. In later series of cases and in the experience of others who have applied this technic, there have been no fatalities to date.

Placenta Praevia.—Boquel advocates abdominal cesarean section when severe hemorrhages during a pregnancy are endangering life. In a case reported the woman was at the fifth month, the cervix long and without any tendency to dilate, and the hemorrhages from placenta praevia had brought her into a serious condition. The high cesarean section showed the uterus normai, and it was left undisturbed after extraction of fetus and placenta. The woman has passed through two normal pregnancies since, with healthy children. The fetus is unable to develop normally when there are recurring grave intra-uterine hemorrhages, and the high section leaves the normal uterus ready for further pregnancies. Boquel remarks that his case is the fourth that has been published in France of cesarean section for placenta praevia, while in 1913 Döderlein had compiled 146 cases in the other countries.

Curvature of the Spine in the New-Born.—Geffray shows by an artificial head and spine and illustrations of cadavers of new-born infants that in determining the pressure of the cerebrospinal fluid the attitude of the subject should be taken into account. He also shows the importance of the attitude of the fetal spine in the birth process.

Transfusion of Blood.—Guillaume describes each of the various methods for transfusion of blood at present in vogue, and remarks that notwithstanding the progress realized in the last few years, there is still room for improvement. Not only the corpuscular elements in the blood but the volume of the blood fluid have to be restored to overcome the effect of severe hemorrhage. It is not necessary, he says, to restore as many corpuscles as have been lost, but enough should be infused to supply material from which new ones can be made, the presence of the corpuscles, in itself, acting to stimulate the production of new. He suggests that the blood to be used might be taken up in a syringe already containing a certain amount of physiologic saline solution. By this means the saline and the blood could be infused together, at one intervention supplying the two factors needed for the regeneration of blood: whole blood and sufficient fluid for the heart to pump on.

Lyon Médical

April, 1918, **127**, No. 4

Deficiency Diseases. The Alimentary Origin of Pellagra. E. Weill and G. Mouriquand.—p. 145.
Bilharziasis in France; Ten Cases. Boulouneix.—p. 151.
Transfusion of Citrated Blood: Agote Method. J. B. Abalos.—p. 186.

August, 1918, **127**, No. 8

Necropsy in Case of "War Nephritis" of Two Year's Duration. Péhu, Daguet and J. F. Martin.—p. 337.
Radium Therapy in Gynecology. Condamin and Nogier.—p. 344. Conc'n.
Treatment of Acne. P. Jourdanet.—p. 349.
*Treatment of Diphtheria. A. Perretière and M. Bouchet.—p. 352.

Diphtheria.—Large doses of antitoxin and local application in the form of powder, insufflated into the nose and throat until the bacilli have entirely disappeared, are advocated in this article.

Nourrisson, Paris

November, 1918, **6**, No. 6

*Intolerance for Milk. A. B. Marfan.—p. 321.
*Cerebrospinal Fluid in Infants. J. Crespin and G. Athias.—p. 329.
*Pathology of Heart in Syphilitic Infant. R. Flament.—p. 340.
*Lead Poisoning from Nursing Bottles. Guerbet.—p. 344.
*Kala-Azar in Children in France. M. Labbé, Targhetta and Ameuille. —p. 346.
Poliomyelitis in New York in 1916. Germain and Blechmann.—p. 348.

Intolerance of Certain Infants for Cow's Milk.—Marfan distinguishes between the children who merely do not thrive on cow's milk and those for whom it is an active poison. This latter group of cases is very small; the infants are usually from 5 months to 2 years old although instances have been known in children up to 6 years of age. He analyzes the arguments that have been presented to sustain the assumption that this intolerance for high grade milk is a form of anaphylaxis. He recalls, however, that to date no one as yet has determined in the blood of such children the presence of the proteins from cow's milk retaining their heterogenous character. The possibility of anaphylaxis from ingestion is still open to discussion; Bauer and Besredka's researches in this line were negative. The toxic manifestations may occur at the first ingestion of the cow's milk—a fact which does not harmonize with the conception of anaphylaxis. The toxic manifestations occur also irregularly and variably, and similar symptoms have exceptionally been observed with breast milk.

At the same time, the theory of anaphylaxis seems more plausible than any other yet advanced. A breast-fed child given cow's milk for the first time may at once present fever, vomiting, mucous diarrhea, sometimes bloody, with or without a rash, the respiration becoming fast and deep, with weak pulse, choleriform aspect of the face and tendency to collapse. This toxic clinical picture subsides at once on suppression of the cow's milk, but returns on its resumption. This clinical picture may develop suddenly in children who have been previously apparently thriving on cow's milk. Also in children who had been returned to the breast for a time, as they were not thriving on artificial food, and these toxic manifestations appear when they are given cow's milk anew. In a fourth group of cases, they develop when a bottle-fed baby has been kept on water alone for a day or two and the cow's milk is then resumed. Even a very small amount starts the toxic syndrome. Its sudden appearance even after as little as a teaspoonful of milk in the child's food, and the liability to return at each new ingestion of milk, are special features of this intolerance. In a case reported by Finkelstein, at the fifth attempt, the child getting 10 gm. of cow's milk diluted by a third, developed subacute enterocolitis immediately, with convulsions and death. The usual progressive aggravation at each repetition is one of the strongest arguments for the anaphylaxis theory.

Treatment may require saline infusion, camphorated oil and tepid baths, as for any choleriform diarrhea, in addition to stopping the cow's milk and feeding only water for a day and then giving breast milk or asses' milk. If the child is over 6 months old, gruels made with water, and sweetened, may be given. If breast milk is not available or the child is too young to be fed gruels, good results can generally be obtained by training the child to tolerance, that is, by giving 1 drop of milk in 50 gm. of water; an hour later 2 drops, and so on, every hour doubling the number of drops. When the child thus tolerates a teaspoonful every hour, stop the milk for twenty-four hours and then resume progressively, with longer intervals until the normal ration can be resumed. Water or vegetable broth can be given in addition, to supply the adequate nourishment. Whenever a child known to have displayed an intolerance for cow's milk returns to it after an interval of suspension, it should be resumed by this progressive technic. Modified milk is often borne better than plain milk; buttermilk or condensed or desiccated milk can be used first, to train to tolerance, returning later to ordinary milk. Schlossman has reported success in training to tolerance by injection of progressive doses of beef serum from 0.1 to 1 gm., but Salge's experience with this was disappointing.

The Cerebrospinal Fluid in Meningitis in Infants.—Crespin and Athias report a case of tuberculous meningitis and one of syphilitic meningitis, both in children under 2, breast fed, and both having urea in the lumbar puncture fluid. Urea in

this fluid, therefore, cannot serve to differentiate meningitis of tuberculous origin as Nobécourt has recently asserted. It deserves the greatest attention, however, as possibly a sign of intoxication of some organ remote from the nervous system.

Hypertrophy of Right Heart in Infant.—The child of 9 months had inherited syphilis and, besides the malformation entailing the hypertrophy of the right heart, there was endocarditis of the mitral and tricuspid valves.

Lead Poisoning from Nursing Bottles.—Guerbet refers to bottles made from what is called crystal. He found that a child using one of these bottle was growing pale and developed eczema. The milk also showed slight discoloration. The glass is made with a certain percentage of lead.

Kala-Azar in France.—Summarized when article appeared elsewhere. (June 1, 1918, p. 1638.)

Paris Médical

Nov. 23, 1918, **8**, No. 47

*The Teaching of Therapeutics. P. Carnot.—p. 409.
*Jaundice with Picric Poisoning. P. Merklen.—p. 417.
*Influence of Quinin on Stomach Functioning. P. Baufle.—p. 418.
*Immunization in Inherited Syphilis. Lacapère and Laurent.—p. 422.

Nov. 30, 1918, **8**, No. 48

*Medical Service for Repatriated Civilians. L. Bernard and P. Armand-Delille.—p. 426.
*Rebellious Dyspepsias. C. Nordman.—p. 433.
Technic for Determination of Carbon in Urine. L. Bauzil.—p. 435.
*Improved Technic for Amputation. Phocas.—p. 435.

Teaching of Therapeutics.—This is the inaugural lecture of Carnot's course on therapeutics which, he reiterates, is "the synthesis and the conclusion of all medical science. All our efforts to discover the causes of disease, its symptoms and lesions, have for their aim the cure of the sick. So that, for the therapeutist, scientific research is constantly supplemented by efforts for immediate practical results. This dual aspiration molding the mind of the physician makes of him at the same time a savant climbing to the peaks and a pitiably humble gleaner palpitating with humanity." Carnot includes in therapeutics all electric and other physical measures, climate and diet as well as vaccines, serums and organ extracts, besides all forms of psychotherapy.

Picric Acid Jaundice.—Merklen recalls that the discloration of the skin by picric acid and its derivatives occurs as a rule without any changes in the liver at first. Long kept up, however, the liver suffers and there is actual jaundice.

Action of Quinin on Stomach Functioning.—Baufle gave test meals to the same subjects with and without 1 gm. quinin sulphate or hydrochlorid in a cachet. The stomach content was examined in thirty minutes and again an hour later, the stomach being rinsed out each time with 200 c.c. of water. The effects observed demonstrate the necessity for selecting the preparation of quinin in accordance with the state of the subject's stomach. When there is a tendency to hypersecretion, the sulphate should be given the preference. With hyposecretion, the hydrochlorid should be selected as this stimulates sluggish glands to better secretion. It should be given from thirty to forty minutes before the meal, in about 100 or 150 c.c. of water. The quinin by this means will have passed out of the stomach before the meal begins, leaving the secretory glands stimulated to a high degree. The sulphate, on the other hand, modifies conditions very little, no more than the physiologic range.

Immunization by Inherited Syphilis.—The Mohammedans of Morocco are infected by syphilis to such an extent that scarcely 25 or 30 per cent. escape. In five schools at Fez, stigmata of inherited syphilis were found in 107 of the 272 children. In some of the others there is nothing to suggest syphilis except the positive Wassermann reaction. This warns of possible manifestations later, and calls for specific treatment of the children of syphilitics even when minor dystrophies may be the only sign of the latent disease. The evidence in regard to the fifth cusp among the children failed to confirm any connection with syphilis.

Medical Care of Repatriated Civilians.—Armand-Delille and Bernard describe the working of the service organized to care for civilians being sent back to France from the enemy countries. It comprises six separate services, including one for children, one for the tuberculous, and one for other diseases. A physician with two nurses boards the train as it crosses the border, and by the time it reaches the first stop the passengers are classified and those requiring emergency treatment are sent to the hospital. The vermin extermination service can attend to 200 per hour, and persons with parasitic affections are sent to an adjoining special hospital. In a recent eight months, 4,200 cases of scabies were given treatment and 234 cases of impetigo. Each case of tuberculosis is carefully classified and hospital or sanatorium treatment is provided. Those who refuse to go to such have to be allowed to proceed to where friends are awaiting them, but each is given a pamphlet of instructions and the family is given another pamphlet. A special notice is also sent to the prefect of the province so that the physician of the Comité départemental d'assistance aux anciens militaires tuberculeux can look after the case further. This complex medical service for the repatriated is in charge of fourteen physicians with large numbers of nurses. The whole system of care for the repatriated at the three receiving centers is admirably planned and organized. Valuable aid is constantly rendered by the American and French Red Cross and its London branch, the New Zealand committee, and French organizations, but above all, they say, "by the American Red Cross which here as elsewhere has given lavishly of its supplies and the devoted service of its personnel."

Rebellious Dyspepsia.—Nordman does not agree with those who think that the nervous element is the great obstacle in treatment of rebellious dyspepsia. His experience with large numbers of cases has always been that some organic thorn is always present in these intractable cases maintaining the irritation. There is usually a superposed neurosis, but back of all is the irritating organic disturbance thorn. The latter in a large proportion of cases is a colitis. In others, unsuspected amebiasis is responsible for the indigestion and weakness. Discovery of eosinophilia gave the first clue in one such case. In another case, there was no improvement under six months of sanatorium treatment for assumed tuberculosis, but after discovery of the ameba prompt recovery was realized under emetin and an arsenic preparation in small doses. In another group of cases the rebellious dyspepsia was the first manifestation of pulmonary tuberculosis. The dyspepsia improved under treatment, but the men soon returned with unmistakable pulmonary lesions. The number of such cases is legion, he says, and one cannot be too much on the alert to detect them. Taking the temperature regularly, tachycardia, modification of the pulse and low blood pressure may suggest incipient tuberculosis as the cause of what seems simple dyspepsia. He warns further that whenever there is recurring pain in the stomach in spite of repose and severe dietetic restrictions, ulcer should be suspected.

Amputation of Leg.—Phocas has the patient lie prone, face downward. He cuts the semicircular flap on the back of the leg, and ligates the vessels as he shows in illustrations. Then by merely lifting up the leg, flexing it at the knee, without disturbing the patient, he obtains free access to the other side of the leg. The exigencies of war surgery have often compelled him to operate on the patient in this prone position, and the theoretical objections against it were not realized in practice. Ether anesthesia proceeds smoothly, the lungs seeming to work unusually freely. It has even been his impression that postoperative vomiting was less frequent and the anesthesia more regular.

Presse Médicale, Paris

Nov. 28, 1918, **26**, No. 66

*The Misdeeds of the Wassermann Reaction. G. Thibierge.—p. 609.
Modification of Visual Field from Shell Concussion. A. Mairet and G. Durante.—p. 611.
Oxidation and Reduction in Action of Drugs. J. E. R. McDonagh (London).—p. 612.

Dec. 9, 1918, **26**, No. 68

*Grafts of Dead Tissues. J. Nageotte and L. Sencert.—p. 625.
*Periodical Fever with Tibialgia. J. Bourcart and Laugier.—p. 627.
*Apical Insufficiency without Tuberculosis. G. Breccia.—p. 629.
*Ether Anesthesia by the Rectum. R. Monod.—p. 630.
Transabdominal Auscultation. R. Robine.—p. 631.

Present Status of the Wassermann Reaction.—Thibierge warns against undue reliance on the Wassermann reaction. Even competent and experienced biologists may obtain contradictory findings at times. It is not a chemical reaction but a test of the properties of certain substances of unknown composition, existing in unknown and certainly variable amounts, and the test is made by means of other substances of equally unknown nature present in the reagent also in unknown proportions, and associated in the reagent with a crowd of other substances, equally unknown and in proportions independent of those which are concerned in the reaction. Besides all these uncertainties is the personal equation, one observer regarding as positive what another would class as dubious or negative. Frequent control of the antigen is also indispensable to avoid misleading findings. He warns further of laboratories which play into fakers' hands, reporting the reaction as always positive. In dubious cases we should demand a test by known competent authorities before making the diagnosis or starting treatment for syphilis. In the first three weeks there is a reaction in about 68 per cent. of the cases; positive results even in as many as 91 per cent. of the cases cannot be anticipated before the seventh week. After the fifth week the Wassermann test is most dependable; before this only the discovery of the spirochete is decisive. During the war, mixed chancres have become comparatively common. The seroreaction six or seven weeks after the first symptoms will reveal whether the syphilitic infection is or is not associated with simple chancre. He declares further that the seroreaction is negative in about 10 per cent. of syphilitics with active manifestations of the disease. The reaction is liable to occur also in certain skin diseases in nonsyphilitics, and even in syphilitics with these skin diseases, who otherwise would respond negatively to the test. This fact has misled some into assuming a syphilitic origin for some of these skin and other affections, including Paget's osteitis deformans.

The Wassermann reaction should not be depended on as a guide for treatment during the first year of infection. The test should be applied occasionally as it may indicate whether or not treatment should be intensified, but it is folly indeed to give the patient to understand that continuing or suspending treatment depends exclusively on the Wassermann reaction as if it were an automatic therapeutic slot machine. In the latter stages of the disease, it is a useful guide when positive; it is less reliable when negative. Especially with syphilis of the nervous system, in which the Wassermann reaction is often negative, the patient would be deprived of the benefit from treatment if it were suspended because the Wassermann test was negative.

Thibierge insists that this test should not be allowed to modify the old rule that consent to marriage should not be given till four years from infection—some say six years—and when eighteen months have passed without manifestation of the disease. The only modification of this rule is that, after this delay, a positive Wassermann reaction calls for further postponement until it has veered to negative. He remarks that none of the authorities in syphilology have modified this rule for any patients who have presented manifestations of the second stage of syphilis.

In regard to energetic abortive treatment, he says that to date we have no means of positive knowledge whether the patient has been actually cured or not. Theoretically we may assume this, and sometimes we find that a patient has contracted a new syphilitic chancre. But in reality this occurs less frequently than we have been given to suppose, and it is more prudent to cling to the classic rules until longer experience has settled the question. The most that can be granted is that when the initial treatment was known to have been really energetic and repeated serum tests have been consistently negative, consent to the marriage might be given in three years. In conclusion he warns against breeding or fostering syphilophobia in impressionable subjects who ascribe exaggerated importance to the Wassermann test. The physician must be extremely careful in examining and in what he says in regard to the Wassermann test to easily unbalanced persons who have been exposed to syphilis. An imprudent word or the dictum of some irresponsible laboratory will convince nonsyphilitic men of this type that they have syphilis, and they then fall a prey to fakers of all kinds.

Grafts of Dead Tissue.—The success of Nageotte and Sencert in using dead tendons and other tissues to bridge gaps has been recently mentioned in THE JOURNAL. They here report experimental research which explains the mechanism of the process. The microscope shows that the ingrafted tendon blends with the living tissues until no line of demarcation can be detected. The dead graft actually comes to life, as it were. This occurs constantly with the proper technic with grafts the structure of which permits immigration of the connective tissue cells of its host. After the dead protoplasm has been carried off by the migrating cells, the fibroblasts flock into the persisting connective tissue frame left; circulation becomes reestablished and in time it is actually impossible to tell that the graft had been dead when it was implanted. Using grafts after fixation in alcohol or with formaldehyd, they do not induce any reaction and they become soldered directly to the tissues of the host without interposition of any new tissue. The eight illustrations give the findings in dogs; they show that there is no need to use fresh living grafts or living cold storage grafts, as the dead grafts of tendons, arteries, etc., answer the purpose perfectly.

Periodical Fever with Tibialgia.—Bourcart and Laugier describe what they think is a new clinical entity. The chills and fever resembled attacks of malaria except that the temperature never went above 39.5 C. (103 F.) and it took from thirty-six to forty-eight hours to reach this height and even longer to subside to normal. The intervals are of variable length. The febrile periods are accompanied by agonizing nocturnal pain in the tibias which become intensely sensitive, this tibialgia dominating the clinical picture. It appeared in small epidemics among troops in quarters previously occupied by Russians.

Hypocapacity of the Apex.—Breccia describes the physical signs which reveal that the apex is not expanding properly although otherwise normal. As this invites disease, he emphasizes the necessity for training the apex to do its work properly, advocating medical gymnastics, breathing exercises and other measures capable of promoting the expansion of the lung, especially in the young.

Ether Anesthesia by the Rectum.—Monod has applied this technic in thirty cases and the results were so fine that he commends it as a reliable method when conditions indicate this technic. He never had any accident or incident in his thirty cases while the security and tranquillity of the patient were most propitious for the operation. There were never any by-effects more than from any enema, while this technic seems to avoid the cardiopulmonary reflexes, the congestion of the lungs and the nausea. The ether was administered by a nurse, beforehand, like an ordinary enema.

Progrès Médical, Paris

Nov. 16, 1918, **33,** No. 46

*Hexamethylenamin by the Vein in Septicemia. H. P. Achard.—p. 385.
*Camphor in Influenza. J. Narich and P. Burgeat.—p. 386.
Care of the Sick and Wounded on Ships. Cheyrou.—p. 387.

Hexamethylenamin by the Vein in Septicemia.—Achard reports giving hexamethylenamin intravenously every day for several days in seven cases of septicemia after war wounds. The diuretic action was constant, progressive and durable, and no complications on the part of the liver or kidneys developed. His dose was always 5 c.c. of an aqueous solution containing 0.25 of the drug per cubic centimeter, prepared cold, with intermittent sterilization (tyndallization).

Camphor in Influenza.—Narich and Burgeat laud the efficacy of subcutaneous injections of camphorated oil in treatment of influenza, especially the bronchopulmonary forms. They gave from 2 to 6 gm. per day.

Revue de Médecine, Paris

November-December, 1916, **35,** No. 11-12, Published December, 1918

*Glycemia in Diabetics and Renal Diabetes. R. Lépine.—p. 663.
*Response to Electric Stimulation of the Internal Ear. L. Bard.—p. 675.

*Early Teaching of Medicine at Strasbourg. R. Mourgue.—p. 691.
*Psychophysiopathic Syndromes. M. Dide.—p. 697.
*Parasitic Hemoptysis. M. Salomon and R. Neveu.—p. 707.
*Edema Fluids. E. Cottin and C. Saloz.—p. 720.
*Traumatic Epilepsy. R. Benon and G. Lerat.—p. 734.

Glycemia in Diabetics and Renal Diabetes.—Lépine declares that the generally accepted idea that the sugar content of the blood is abnormally high in diabetes is erroneous. It is based on determination of the sugar content only in grave cases, with complications. Many diabetics have less than 2 per thousand sugar in the blood, which is within normal range. Glycemia, consequently, is not necessarily an essential element of the clinical picture in diabetes. On the other hand, the permeability of the kidneys for sugar may become increased under different circumstances and the result is what we call renal diabetes. This seems to be of common occurrence in pregnant women. Experimental research indicates that nervous disturbances may be responsible for it or an upset in the endocrinous glands. He describes a number of instances of renal diabetes, without any signs of true diabetes, occurring in persons with chronic or long healed nephritis, or in the young in conditions like those with albuminuria of adolescence only that they presented glycosuria instead of the albuminuria. In two women inclined to hysteria, slight intermittent glycosuria alternated at times with albuminuria, depending on the diet. The glycosuria in one was always accompanied by polyuria. In other cases in apparently healthy persons, the glycosuria was only occasional and never very pronounced, while the sugar content of the blood was always below normal. An alimentary influencing of renal diabetes is nearly always unmistakable.

Deviation of the Head Under Electric Stimulation.—Bard reports the results of study of what he calls voltaic inclination, in normal subjects and with hemiplegia. Some of his previous conclusions on the sense of gyration were described in these columns, Nov. 23, 1918, p. 1780. He here describes some further laws he has worked out.

A Pioneer Medical Philosopher.—Mourgue cites from the works of Schützenberger, a Strasbourg professor of pathology in the last century, which prove that he was a pioneer in many fields of medical thought which are now common property. We forget those who blazed the way for the rest of us.

Psychophysiopathic Syndromes.—Dide refers to the contractures, etc., which have developed after a war wound in persons inclined to hysteria. A tendency to mental weakness and a shrinking from anything liable to induce pain are important factors, supplemented by a weakness in will power. All physicians who have anything to do with war wounds must repeatedly impress on themselves anew that joints grow stiff and useless when not used, and the will power and the brain grow stiff and useless unless inertia can be overcome. A phobia of pain, plus a condition of mental and motor weakness, favor the functional incapacity, and suggestion, created by habit, systematizes it. Secondary trophic or vasomotor disturbances then intervene to stabilize it.

Parasitic Hemoptysis.—Salomon and Neveu were impressed by the frequency of hemoptysis in troops and workmen from Indo-China and other Oriental countries, but they found that the hemoptysis did not mean the same in these men as is the rule elsewhere. Every bronchitis in an Asiatic that drags along and is accompanied by blood in the sputum, calls for hospital care and strict disinfection of the sputum, as it is liable to contain the eggs of the *Paragonimus westermanni* or *Distoma ringeri*. They insist that the discovery of distomatosis of the lungs is a warning to deport the patient if his condition permits sending him back to his home. These are the only means to prevent the development of foci of endemic distomatosis.

Edema Fluids.—When the edema is the result of kidney disease, the edema fluid shows the effects of dyscrasia—hence there is no reason for the fluid to be rich in proteic substances. When the edema results from heart disease, the fluid accumulates under mechanical influences only. It is the result of stasis, like the transudates, which have a higher albumin content than that of a fluid which is derived from a change in the composition of the blood. The study of the edema fluid thus reveals whether the kidneys or the heart are to be incriminated, and whether it is a question of compression or cachexia.

Traumatic Epilepsy Plus Hemiplegia.—Benon and Lerat report a case of epilepsy after a skull wound, with complicating delirium with hallucinations, transient mental confusion and functional hemiplegia. The case confirms what the war wounds are teaching more and more, namely, that the majority of cases of general epilepsy, such as used to be called essential epilepsy, all belong in the same category with the rest, namely, symptomatic epilepsy.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 23, 1918, **48**, No. 47

*Perforation of Tuberculous Mesenteric Glands. H. Iselin.—p. 1569.
Correct Operation for Inguinal Hernia. A. von Mutach.—p. 1573.
*Rupture of Recurring Hernia. J. Dubs.—p. 1578.
The Cerebrospinal Fluid at Different Periods of Syphilis. G. Cornaz.—p. 1584.

Dec. 7, 1918, **48**, No. 49

Treatment of Influenza. R. Massini.—p. 1633.
*Improved Technic for Vital Staining. B. Roman.—p. 1638.

Perforation of Tuberculous Mesenteric Glands.—Iselin lists among the conditions which may simulate acute appendicitis: perforation of stomach or bowel, gonococcus inflammatory lesions, tubal abortion and intra-abdominal menstruation, but devotes this article to perforation of tuberculous mesenteric glands. The resulting clinical picture deceptively simulated acute appendicitis in his eight cases of the latter. Four of the patients were children of 4 to 10 and the others were young women from 17 to 24. All recovered and one of the children was recently reexamined and found clinically normal. The amount of irritation of the peritoneum determines the symptoms. Even sterile pus, such as was found in one boy of 6, induces severe peritonitis. Softening and perforation can occur in mesenteric glands as well as in glands in the neck, and mixed infection is liable. It is perhaps surprising that tuberculous mesenteric glands do not suppurate and perforate oftener. Roentgen exposures promote and hasten the softening of tuberculous glands, hence suppurating mesenteric glands should not be exposed to them. Hyperplastic glands benefit by the exposures, but the danger of perforation is imminent when suppurating glands are exposed. He had one case in which roentgen treatment of tuberculous peritonitis was followed by a tuberculous ulceration in the bowel rupturing into the open abdomen. There is a possibility that tuberculous peritonitis starts with perforation of a softened gland. The way in which the nodules are usually distributed seems to sustain this assumption. The similarity of the clinical picture with perforation of a gland and with acute appendicitis is an advantage as it brings prompt operative intervention.

Meckel's Diverticulum in Hernia.—The inguinal hernia developed through the cicatricial tissue from two former hernia operations, and Meckel's diverticulum projected from the lowest point of the large hernia. It was gangrenous from incarceration in the opening in the skin. The patient was a man of 79 and the rupture had occurred suddenly while he was pitching hay.

Vital Staining of Elastic Fibers.—Roman describes research with a substance which stains a rabbit violet although outside of the animal it does not look nor behave like a stain. It is a modification of atophan, thienyl-chinolin-carbonic acid, and seems to affect chiefly the elastic fibers, especially those of the vessels. A violet stain can be isolated from the urine of the animals. Fifteen pages are devoted to analysis of the findings with this vital staining and comparison with them of similar research by others.

Pediatria, Naples

December, 1918, **26**, No. 12

Variations in Opsonic Index during Vaccine Therapy of Typhoid.—A. Corica.—p. 665.
*The Abderhalden Reaction during First Month of Life. G. Caronia.—p. 675.

The Abderhalden Reaction in Infants.—Caronia examined the serum of thirty infants less than a month old, seeking

for antiplacenta ferments like the protective ferment found in the blood of pregnant women—Abderhalden's pregnancy reaction. He applied Abderhalden's original technic, and obtained a positive response in all of the nine that were less than 6 days old, and in all but two of the seven that were from 6 to 10 days old. Above this age the response was positive only in three of the seven tests.

Policlinico, Rome

Dec. 8, 1918, **25,** No. 49

*Diagnosis of Pseudopleuritic Pneumonia. D. De Sandro.—p. 1189.
*Bronchopulmonary Spirochetosis. G. Dragotti.—p. 1198.
Preliminary Treatment of Fractured Jaw. V. Duca.—p. 1205.

Dec. 15, 1918, **25,** No. 50

Famine Edema on Eastern Coast of Adriatic. G. Pighini.—p. 1217.
*Metastatic Abscess in Thyroid. P. Caliceti.—p. 1219.
To Outline Stomach by Percussion. C. Marchese.—p. 1223.
The Cerebrospinal Fluid with General Paralysis and Syphilis of the Nervous System. G. Sabatini.—p. 1230.

Pseudopleuritic Pneumonia.—De Sandro reviews the present status of what he calls *splenopolmoniti,* and tabulates the findings as compared with those with true pleurisy with effusion. With the former, the left lung is predominantly affected, and the subjects are usually males. The onset is sudden and the course takes from three to seven weeks; the disease only gradually reaches its height and as gradually subsides. The fever is higher and the pain more intense than with true pleurisy. The patient lies on either side, while with true pleurisy he lies on the side affected. The dulness does not change its position.

Spirochete Bronchitis.—This disease to which Castellani called attention in 1904 has been encountered since in both the old and the new world. It may appear in an acute form as a simple bronchitis with fever and bloody sputum or it may assume a chronic form, but the general condition is not much impaired as a rule. Violle has encountered cases in which the bronchial secretion reached a liter a day. Spirochetes abound in the sputum. Castellani has suggested tartar emetic in treatment but symptomatic measures alone are the general reliance.

Thyroid Abscess.—In the case described the abscess in the thyroid was a metastasis from pyemic otitis and mastoiditis, but there was no thrombosis in the transverse sinus. A few days after the first symptoms of the thyroiditis a clinical picture developed suggesting certain features of exophthalmic goiter, but these all gradually subsided after the abscess had been cleared out. The streptococcus was cultivated from both the thyroid and the mastoid pus.

Riforma Medica, Naples

Nov. 23, 1918, **34,** No. 47

*True Neuro-Arthropathies. E. Aievoli.—p. 930.
*Simultaneous Determination of Sulphuric Acid and Phosphoric Acid in Urology. E. Pittarelli.—p. 934.
Factitious Dermatoses. A. de-Bella.—p. 936.
Referendum on Influenza. D. Barduzzi and others.—p. 939.
Diagnosis of Trauma of the Spine. E. Aievoli.—p. 942.

Nov. 30, 1918, **34,** No. 48

The Prevailing Pandemic. G. Saccone.—p. 950.
*Acute Meningitis Without Bacteria. G. Costantini.—p. 955.
Intravenous Injections of Phenol in Treatment of Influenza. S. Orlando.—p. 958.
Treatment of Influenza. A. Jona.—p. 959.
Italy and the History of Anatomy. A. Anile.—p. 962.

True Neuro-Arthropathies.—Aievoli's patient is a man of 58 with tabes and hydrarthroses of both knees. He ascribes it to the hypotony due to the tabes, analyzing similar cases described by others.

Determination of Sulphates and Phosphates in the Urine.—The method of research described is based on the fact that in urine treated with magnesia usta all the phosphoric acid is precipitated, while the filtrate contains the sulphuric acid which can then be estimated by a color reaction with hydrochloric acid, as is described in detail.

Acute Meningitis.—Costantini reports some recent cases of epidemic meningitis in which the cerebrospinal fluid seemed to be free from bacteria, but contained numbers of large mononuclear cells.

Rivista di Clinica Pediatrica, Florence

November, 1918, **16,** No. 11

*Tracheobronchial Glandular Disease. E. Podestà.—p. 561.
*Unilateral Horse-Shoe Kidney. A. F. Canelli.—p. 577.
*Salt Fever in Infants. A. Spallicci.—p. 583.

Symptoms with Tracheobronchial Disease in Children.—Podestà remarks that there are no pathognomonic symptoms early in tracheobronchial glandular disease in children, but when a child fights against being examined, its manner of breathing is instructive. Disease in these glands is frequently overlooked in docile children who submit calmly to examination. The child should be disrobed; this may reveal tuberculids or an eruption throwing light on the differential diagnosis. It may also reveal enlarged and congested veins at some point, suggesting pressure on the veins from an enlarged gland. Any tendency to varicose veins or edema is instructive, as also any tendency to dyspnea, or breathing suggesting asthma. The expansion of the chest on this side may not equal that on the sound side. A tendency to asymmetry can be detected more often than the textbooks admit. As an infant cries or screams, the middle portion of the supraclavicular regions may protrude. This is still more evident when the child holds its breath as it fights those examining it, but it is most pronounced when the child coughs, especially when the coughing is spasmodic as often occurs with diseased tracheobronchial glands. This supraclavicular protrusion is usually transient, occurring only during the phase of expiration, and especially when this is forcible, as during a spasm of coughing, or when the child tries to sit up in bed while an adult prevents this by putting his hand on the child's head. There is no protrusion when the child is tranquil, or during inspiration. The protrusion is usually but not always bilateral, and the most pronounced protrusion may be on the side in which the glands most closely approximate normal. The apex of the lung seems to be responsible for this bulging of the region over it. There is probably more or less emphysema in the apex and superior lobe in general, and an increase in the intrathoracic pressure, owing to the enlarged glands, and these are manifested by this bulging. In one case the necropsy findings confirmed the assumptions based on this transient protrusion of the chest wall. Before accepting it as a sign of tracheobronchial adenopathy, all other affections liable to induce emphysema have to be excluded. Its appearance only on one side is significant, as the glands involved are usually those linked on one side, and mostly on the side of the lung focus, if there is one.

Horse-Shoe Kidney on One Side.—The anomaly was a postmortem surprise. The young soldier had succumbed to a war wound of the liver and the single kidney was found 15.5 cm. long by 9 cm. wide. It was turned back on itself so that this elongated unilateral kidney presented the outline of a horse shoe. There was some malformation also of the vena cava.

Salt Fever in Infants.—Spallicci reviews the literature on this subject and gives the findings in a number of infants. Everything testifies to the fact that there is no febrile reaction to subcutaneous injection of 40 or even 60 c.c. of 0.85 per cent. saline when it has been thoroughly sterilized for at least an hour in the autoclave. On the other hand, even 20 c.c. will send up the temperature when the saline has not been sterilized properly.

Anales de la Facultad de Medicina, Lima

July-August, 1918, **2,** No. 4

The Phenolsulphonephthalein Test for Estimating Renal Function. M. A. Valesquez.—p. 1.
*Peruvian Verruga. O. Hercelles.—p. 10; J. Arce.—p. 24.
Present Status of Treatment of War Wounds. E. Bello and M. Castañeda.—p. 53.
Traumatic Diaphragmatic Hernia. L. de la Puente.—p. 77.
Psychoanalysis. H. F. Delgado.—p. 90. Cont'n.

Peruvian Verruga.—Hercelles describes the important part played by the spleen in this disease, from the first stimulation to exaggerated functioning as a defensive reaction, with intense phagocytosis, then aiding in repairing the injury to the blood, and finally returning to the rôle of the fetal spleen, such as Dominici has described. Several fine colored plates show the different phases of this intense functioning on the

part of the spleen, the necessary congestion as also the complications of a septicemic nature. With the former, fibrous transformation finally ensues; with the latter, infarcts develop. The spleen thus plays the leading part among the organs in this disease. Arce describes the clinical course, pathology and treatment of the malignant form of Carrion's disease. He advocates intravenous injections of neo-arsphenamin, every four or five days, in doses not over 0.2 or 0.3 gm. to a total of three or four doses. The patient's strength should be kept up with a light liquid or semiliquid diet, and epinephrin, camphorated oil, etc., should be given as needed, but purgatives, diaphoretics and antipyretics should be absolutely avoided. In no disease is this latter rule more important than in Peruvian verruga in its malignant form.

Anales de la Facultad de Medicina, Montevideo

July-August, 1918, **3**, No. 5 to 7

*The Paraglandular Organs. A. De Castro.—p. 269.
Biology of the Pus Cell in War Wounds. P. Delbet, N. Fiessinger and R. Clogne.—p. 295.
*Acute Gastritis with Cholecystitis. A. Navarro.—p. 322.
Anesthesia from Injury of the Thalamus. A. Ricaldoni.—p. 332.
Psychologic Conception of Dementia. B. Etchepare.—p. 355.
*Cholesterol Content of the Blood. C. B. Posse.—p. 394.
Acute Appendicitis. D. Prat.—p. 439.
Paraduodenal Hernia. N. L. Bloise.—p. 505.
Some Technical Points in Histology. E. P. Lasnier.—p. 512.

The Paraglandular Organs.—De Castro applies this term to the formations which accompany the endocrinous glands in the human body. They are of the same embryonic origin, and attain a certain degree of differentiation in their development, but they are generally regarded and classed as supernumerary accessory glands or aberrant glandular nodules. He is convinced that they represent a regular system, and are not merely anatomic curiosities, morphologic accidents, anomalies or rudimentary organs, as they have hitherto been described. They form what he calls the paraglandular system, an annex to the system of the glands of internal secretion. They represent an organic system in full evolution. This allows the interpretation of a number of contradictory facts which have hitherto baffled observers, and explains many phenomena in the human economy. Each of the endocrinous glands is liable to have its paragland, as also possibly the epiphyses. There are also abdominal paraganglia, such as the organs of Zuckerkandl and the cardiac paraganglia described in 1906 by Wiesel and Wiesner. The carotid gland is not exceptional but occurs bilateral in nearly every one. Other paraganglia with chromaffine tissue are found along the sympathetic. Luschka's coccygeal gland is not chromaffine and hence does not belong to the paraglandular system. He reviews each member of the system in turn, with evidence from comparative anatomy and physiology to sustain his views.

Acute Gastritis with Cholecystitis.—Navarro reports four cases in which severe gastritis developed suddenly, resembling the toxic gastritis under chloroform. As the patients vomited they felt a vague and diffuse pain in the region of the epigastrium but the complaints were mainly of a smarting in esophagus and throat, almost as if the vomit were burning the tissues. The patients were all adults, and the evidences of serious toxic action were soon apparent as the strength rapidly declined. The rapid pulse and cold extremities in one case suggested rupture of a tubal pregnancy, as the menses had been suppressed for two months and there was right salpingitis. The temperature was not high in any case and the clinical picture soon improved in one case but in the others it was alarming. In one patient the gastritis recurred. In three cases there was a history that suggested gallstone disease in the past, and the operation confirmed that cholecystitis was responsible for the secondary toxic gastritis. This was beyond question also in the other case, but the age (83) precluded an operation. The severe gastritis in each case was conquered by rinsing out the stomach, with ice to the epigastrium. Soon all pain in the stomach and other disturbances subsided but this left the dull ache in the gallbladder. Cholecystitis is thus able alone to set up a severe toxic gastritis, but the cholecystitis itself may be secondary to an old appendicitis or to puerperal infection. Navarro queries whether the gastritis in these cases is due to exceptional toxicity of the contents of the gallbladder or to nervous influences. Two of the cases reported were in brothers.

Cholesterol Content of the Blood in Health and Disease.—Posse discusses the biologic rôle of cholesterol in physiologic and pathologic conditions. It seems evident that the presence of toxic substances in the blood entails abnormally high arterial blood pressure, with cholesterolemia as a defensive reaction. Colesterol is not readily soluble and consequently precipitates form from it. These precipitates infiltrate the walls of the vessels at certain points, producing permanent changes in them, modifying the lumen and the elasticity of the vessel walls. Certain states favor this precipitation and others oppose it; thus Lemoine has noted that arteriosclerosis is comparatively rare in the obese. He ascribes this to the solubility of cholesterol in fats. Inversely, Remlinger suggests that retention of semen, so rich in cholesterol, would tend to favor development of arteriosclerosis. The therapeutic conclusion is evident that the introduction or retention of toxic substances in the organism stimulates to hypercholesterolemia and hence to arteriosclerosis. Lemoine consequently repudiates iodids and nitrites in treatment as aggravating the condition one is seeking to remedy. In chronic nephritis and in cholelithiasis, factors raising the cholesterol content of the blood increase the tendency to production of concretions. This tendency should be warded off. Navarro explains, by the diet, keeping the intake low of fats and other substances liable to augment the cholesterolemia. This should be borne in mind in chronic kidney and gallstone disease, in gout and in the pregnant. Chauffard has reported the case of a woman with mild tuberculosis put on a diet of eleven eggs a day, and in three months there was an attack of gallstone colic with jaundice. On the other hand, it may be advisable to increase the cholesterol content of the blood as an aid in combating toxi-infections. Cholesterol itself could be given, an ethereal extract by the mouth, along with foods rich in cholesterol, including butter. Production of cholesterol might also be stimulated by suprarenal and corpus luteum treatment. The conditions in which cholesterolemia has been intentionally promoted, as a therapeutic measure, to date are pernicious anemia, exophthalmic goiter, certain forms of tuberculosis with hypocholesterolemia, and in the acute period of infectious diseases.

Cronica Medica, Lima

September, 1918, **35**, No. 663

*Alcoholic Cirrhosis. E. Odriozola.—p. 254.
*Echinococcus Cyst in Lung. A. Corvetto.—p. 257.
Present Status of Drainage in Gynecology. M. O. Cruzado.—p. 262.
Epilepsy and Endocrinopathies. E. F. Sanz.—p. 267.
Pathologic Anatomy of the Spleen. O. Hercelles.—p. 272. Cont'n.

Cirrhosis of the Liver.—Odriozola reports the case of a man of 34 with alcoholic cirrhosis of the liver and ascites. At the first tapping over 11 liters of ascitic fluid were withdrawn. As the liver and spleen were much enlarged, the prospects for a cure were better than with the atrophic type of cirrhosis. In these cases the ascitic fluid has to be withdrawn often, without waiting for large amounts to accumulate. An indispensable element in the cure is abstention from alcohol and likewise the staying in bed as long as the tendency to ascites persists. Odriozola regards this as of vital importance. Being up and about is painful and prolongs the disease. It is thus possible to watch over the patient better and supervise his diet. The diet was selected to avoid purins, milk at first, with, later, starch dishes and cooked vegetables. The bowels are kept open with mild laxatives, and organic iodin preparations are given in small doses. Under these measures the man in the case reported was discharged in good condition in three months.

Echinococcus Disease of the Lungs.—Corvetto describes two new cases which confirm that there are no pathognomonic symptoms of an echinococcus cyst in the lung, aside from discovery of the parasite in the sputum, but the roentgen rays may give the clue, locating the cyst and facilitating operative measures. He has encountered four cases of the kind and knows of two more at Lima, so the pulmonary form is not so rare as generally assumed. In one of the cases the

symptoms and course simulated pulmonary tuberculosis until expulsion of the cyst membrane cleared up the diagnosis and put an end to the disease at one stroke. Hemoptysis with a tenacious cough and other pulmonary symptoms should not be labeled tuberculosis as a matter of course.

Gaceta Medica de Caracas

Nov. 15, 1918, **25**, No. 21

Early Diagnosis of Pregnancy. D. Lobo.—p. 221.
*Ambard's Ureosecretory Constant. E. M. Flegel, J. Iturbe and E. Gonzales.—p. 223.
Dangers of Pituitary Treatment. A. Turenne.—p. 230. To be cont'd.

Ambard's Ureosecretory Constant.—Flegel, Iturbe and Gonzalez extol the combination of the various measures in vogue for estimating potential renal functioning. The combination of different methods of exploration of the kidneys gives almost positively reliable information, as when nephrectomy is contemplated. The six methods of investigation described are the dilution test, the phlorizin test, chromoureteroscopy, the phenolsulphonephthalein test, the Ambard formula, and the application of the laws regulating the urea and the chlorids in the segregated urine.

Medicina Ibera, Madrid

Aug. 31, 1918, **4**, No. 43

*Early Diagnosis of Ectopic Pregnancy. R. B. de Bengoa.—p. 214.
Aphorisms on Therapeutics. V. de Castro.—p. 217.

Sept. 7, 1918, **4**, No. 44

Iodin in Therapeutics. IV. A. S. Alvarez.—p. 241.
A Spanish Surgeon of Columbus' Day. B. L. Diaz.—p. 244.

Sept. 14, 1918, **4**, No. 45

Technic for Circumcision. E. A. S. de Aja.—p. 269.
Otitis Media. J. S. Señan.—p. 270.
Malaria. B. G. Diaz.—p. 272.
Aphorisms. V. de Castro.—p. 273.

Early Diagnosis of Extra-Uterine Pregnancy.—Bengoa remarks that the condition of the breasts aids in early diagnosis of an ectopic pregnancy except when less than eighteen months have elapsed since a preceding pregnancy. The gravid tube is movable, and he has always found it more or less in its normal place. It is seldom enlarged to the size of two fingerbreadths, and it is not tender. Pain in the stomach, a little vomiting and transient fever may have been the only manifestations of an attack of appendicitis which has left an exudate fusing the organs together, including the tube or ovary or both. But this is seldom mistaken for a tubal pregnancy.

Semana Medica, Buenos Aires

Aug. 22, 1918, **25**, No. 34

The Damage from Boiled Milk. A. d'Alessandro.—p. 233.
Abdominal Tumors Simulating Cancer. C. A. Castaño.—p. 242.
Local Epidemic of Typhoid. E. Debenedetti.—p. 246.
Analysis of Dimethylamino-antipyrin. J. A. Sanchez.—p. 249.
Comparison of Symphysiotomy and Pubiotomy. T. A. Chamorro.—p. 255.
Film Treatment of Burns. V. Defelice.—p. 262.

Aug. 29, 1918, **25**, No. 35

*Manifestations in Digestive Apparatus of Cardiac Insufficiency. J. R. Goyena.—p. 273.
Congenital Heart Deformities. M. Acuña and A. Casaubon.—p. 278.
Extracapsular Resection of Tuberculous Stiff Knee. Ceballos.—p. 281.
*Tuberculin Treatment. L. K. Wimmer.—p. 284.
Absorption of Iodin and Oil Preparation by Intramuscular Injection. J. Destéfano and J. R. Goyena.—p. 290.

Dyspepsia of Cardiac Origin.—Goyena analyzes a typical case in which failing compensation of a valvular lesion was accompanied by a set of symptoms on the part of the stomach, overshadowing the heart disease and long treated for dyspepsia only. In such cases the symptoms are vague and diffuse, oppression and distention in the stomach region, a dull ache, with occasional vomiting. There is always retention of chlorids, even without edema, the chlorid content of the blood being always above normal. Hematemesis is an important symptom, or there may be merely occult blood in the stools or vomit. All these manifestations on the part of the stomach are the result of defective circulation from insufficiency of the myocardium. It is felt also in the liver, the stools showing the insufficiency of the liver. The diagnosis of the cardiac origin of the gastric disturbances is confirmed by the striking effect of treatment directed to the heart alone. The first thing is to reduce the work of the heart. This he accomplishes with a purgative; one like sodium sulphate which is not readily absorbed but acts at the same time on the liver. The patient should be kept on milk alone for a time. This not only facilitates digestion but has a diuretic action. This reduces the minimal tension, while the maximal tension is raised by giving some heart tonic, digitalis or strophanthus. The subsidence in two or three days of all the symptoms of dyspepsia confirms the cardiac origin. "The patient," he says, "enters the physician's office a *gastrico* and leaves it a *cardiaco*, with all that that implies."

Tuberculin Treatment.—Wimmer gives the details of twenty cases of different forms of tuberculosis to illustrate the excellent results that can almost be counted on with tuberculin treatment as an adjuvant to the usual measures. The mode of reaction in each patient should be carefully studied and the tuberculin gaged accordingly. The greater the reaction, the more cautious should be the dosage of the tuberculin. The most promising cases are those in which there is an intense reaction but without modification of the pulse, in which the congestion and the fever yield to small doses, and the weight shows a very slow but progressive increase.

Siglo Medico, Madrid

Oct. 5, 1918, **65**, No. 3382

*What the Hospital Should Be. J. F. Rodriguez.—p. 809.
Early Diagnosis of Appendicitis. L. Cardenal.—p. 811. Conc'n.
Referendum on Influenza. J. Ubeda Correal and others.—p. 812.

Oct. 12, 1918, **65**, No. 3383

*Surgical Sequelae of Influenza. Iñigo.—p. 829.
*Sugar in Pulmonary Tuberculosis. G. Pittaluga.—p. 831.
Incompatibility of Quinin and Aspirin. R. S. de Santa Maria.—p. 833.
Referendum on Influenza. A. P. Fernandez and others.—p. 834.

What the Hospital Should Be.—Rodriguez protests against building hospitals with marble halls, etc., to defy the centuries. They should not be expected to last very long, only long enough to serve for the care of the sick with the means available during the epoch in which they are living.

Surgical Sequels of Influenza.—Iñigo remarks that almost the only sequels of influenza which require surgical intervention are pleural effusions. In the effusions examined at Madrid, a streptococcus was found in large numbers, in pure culture. For this and other reasons he made a point of puncturing and draining at once on suspicion of a pleural effusion, purulent or not, and the results were surprisingly gratifying, as he relates in detail.

Sugar in Treatment of Tuberculosis.—Pittaluga describes the theoretic and experimental bases for intramuscular injections of saccharose in treatment of pulmonary tuberculosis, and reports the case of a young woman with pronounced pulmonary lesions, living in unhygienic surroundings, whose condition was favorably transformed by a series of injections of 10 c.c. Reduction of the local manifestations and a certain degree of euphoria were thus realized by this measure. It seems destined to prove a useful adjuvant to the usual means of treating the tuberculous. More than this should not be expected of it. (See page 313.)

Gann, Tokyo

October, 1918, **12**, No. 3

*Research on Rat Cancer. N. Umehara.—p. 31. To be cont'd.
Metastasis of Chicken Sarcoma. K. Tadenuma.—p. 37.
*Miostagmin Reaction with Chicken Sarcoma. K. Tadenuma.—p. 38.
*Malignant Transformation of Fibroma in Mesentery. I. Miwa.—p. 39.

Malignant Transformation of Transplanted Benign Tumor.—Umehara reports that he has succeeded in cultivating a transplantable sarcoma from a benign adenofibroma. The spontaneous benign tumor, about as large as a walnut, was found on the breast of a white rat. In structure it closely resembled human adenofibroma and scraps and emulsions from it were injected in 423 rats, with the development of a large tumor in 144 of the animals. By this means he was able to study the conditions of evolution and growth of the neoplasm through entire generations. In different series of

experiments he studied the effect of mechanical, thermic and chemical influences on the transplants. In this instalment of his report he says that he has carried the research to the fourteenth generation. In the early generations about 90 per cent. of the transplants gave positive results, while this has declined to 15 per cent. in the later generations. He refers to the transformation to sarcoma only in the heading to his article, which is to be continued.

Miostagmin Reaction with Hen Sarcoma.—Tadenuma states that the miostagmin reaction was seldom positive before the twentieth day after the tumor-grafting operation. Later than this it was almost invariably positive, but veered to negative again after extirpation of the tumor.

Malignant Transformation of a Fibroma in the Mesentery.—The man of 56 had long had a movable tumor in the left side, about as large as a goose egg. It suddenly began to enlarge and proved fatal in less than two years. It proved to be a fibroma in the root of the mesentery which had undergone malignant degeneration with extensive metastasis. The illustrations show that the tumor had developed a fibrosarcoma and also a myxofibroma.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 26, 1918, **2**, No. 17

Is Mutation or Crossing the Cause of Evolution? J. P. Lotsy.—p. 1395.
*Dextrocardia. J. W. M. Indemans.—p. 1405.
*Light Phenomenon Through Closed Eyelids. T. Wassenaar.—p. 1412.
Syphilitic Hepatitis. J. Exalto.—p. 1413.
Aneurysm of Descending Aorta. G. van Heck.—p. 1417.

Nov. 2, 1918, **2**, No. 18

*Absorption of Nitrogen from Food. E. C. van Leersum.—p. 1464.
*Hypertrophy of the Prostate. C. W. G. Mieremet.—p. 1474.
Separate Organization of Specialists in relation to National Medical Organization. H. G. Hamaker.—p. 1482.
Case of Quincke's Edema with Irritation of Vagus. Koster.—p. 1485.

Dextrocardia.—Indeman reviews what has been published on congenital dextrocardia or situs cordis inversus, and reports a case in a young man and in the young man's mother's brother. This is the first case of familial dextrocardia on record, he believes.

Visual Phenomenon Through the Lid.—Wassenaar calls attention to the flash of bright red light which one sees when one eye is entirely covered and the other eye is alternately rapidly covered and then exposed to a moderate light, the eyelid closed. He theorizes that the visual apparatus reacts to a stimulus at the first beginning differently from the way it reacts a moment or two later.

Utilization of Protein in the Food.—Van Leersum tabulates the results of research which explain the conflicting findings of different investigators with coarse bread, as they demonstrate that the absorption of nitrogen depends on the length of time the food remains in the bowel. Persons with lively peristalsis pass it on so quickly that all the nitrogen does not get digested and assimilated, while others with a tendency to constipation get a chance to utilize it to the last particle.

Hypertrophy of the Prostate.—Mieremet presents a number of arguments to sustain the assumption that the hypertrophy of the prostate is due primarily to the action of a hormone from the testicles. If the hypertrophy were merely a tumor, then we might expect it to occur at any age, while in fact it affects almost exclusively men at a certain age. The phenomena observed with roentgen exposures of testicles and prostate also sustain his assumption. He thinks that not enough attention has been paid to the internal secretion of the testicles as a factor in enlargement of the prostate, and urges research on the testicles in cases of hypertrophied prostate.

Nordiskt Medicinskt Arkiv, Stockholm

November, 1918, **51**, Surgical Section No. 3-4

*Experiences with Surgery of the Ureters. G. Nyström.—p. 109.
*New Urethra Formed from Saphenous Vein. C. Adlercreutz.—p. 163.

Ureter Surgery.—The surgical section of the *Nordiskt Medicinskt Arkiv* has a name for itself now, the *Arkiv för Kirurgi*, and the articles in it are published in the language the writer prefers; Nyström's article is in German. He describes a large number of unusual operations on the ureters; one for stenosis from appendicitis. In one case he bridged a gap in the ureter with a plastic operation, utilizing a strip from the abdominal wall.

Plastic Operation for Hypospadia.—The man of 58 with complete hypospadia was operated on at one sitting, the new urethra being made from a segment cut from the internal saphenous vein. The man had been brought up as a girl to the age of 23, and had been twice married, but had no children. The graft of the vein proved finally successful after several mishaps, including stenosis requiring excision of the stricture. Cystitis developed and epididymitis, and a calculus had to be removed from the urethra. It had formed around a scrap that had broken off from the retention catheter. Internal urethrotomy was also required. The vein proved to be smaller than had been anticipated, but the final urethrotomy remedied this. Adlercreutz compares with this the other methods of treating complete hypospadia. Unless the new tube is made wide enough, the patient will never be freed from his perineal fistula or it breaks out anew if it heals, whatever the method employed. A tube should be provided as wide as the patient's posterior urethra, that is, allowing the passage of a No. 23 or 24 Charrière. This patient still keeps up the dilatation with a catheter of this size a few times during the week, and his condition is highly satisfactory.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1918, No. 5

Prophylaxis of Plague. W. J. van Gorkom.—p. 1.—p. 72.

Ugeskrift for Læger, Copenhagen

Nov. 14, 1918, **80**, No. 46

*Perforated Gastric and Duodenal Ulcers. H. Hertz.—p. 1801.

Perforated Gastric and Duodenal Ulcer.—Hertz devotes twenty pages to the tabulated details and outcome in 60 cases of perforated gastric or duodenal ulcer in the last few years at the public hospital at Copenhagen. The age of the patients ranged from 16 to 75; only 17 were women. In two fifths of the 13 duodenal ulcer patients no preceding symptoms had been noted before the perforation. The absence of dulness over the liver is an important symptom of the presence of air in the abdominal cavity, but in 12 of the cases the liver dulness was practically unmodified. In about 50 per cent. of the cases transient vomiting occurred at the time of the perforation. Two patients presented two perforations and in several cases necropsy showed other ulcers besides the one that had perforated. Petren has reported several ulcers present in 27 per cent. of his cases. The amount of fluid escaping into the abdominal cavity seems to be comparatively immaterial; some of the patients with the larger amounts recovered. In 12 of the patients the peritoneal contents developed cultures, in all but one of the staphylococcus; 7 of these patients died. At necropsy in all the fatal cases the suture of the perforation had held perfectly; death was due to complications elsewhere. No attempt was made to excise the ulcer in any case. Petren and Rovsing advocate excision, and have reported the recovery of all in their later series of 12 duodenal ulcer perforation cases, including 3 with a chronic fistula and no acute perforation. In only 17 of Hertz' 60 cases was the diagnosis correct when the patient was sent to the hospital; appendicitis was the usual assumption. The outcome of operative treatment was recovery in 75 per cent. of the 19 with a delay of six hours or less; 66 per cent. recoveries among the 12 with interval of from six to twelve hours after the perforation, while only 20 per cent. recovered of the 22 with a longer interval than this. The total mortality was thus 27 out of 53 operative cases, over 50 per cent. He adds that the temperature is not of moment, but a pulse under 90 or 100 is a favorable sign as also a sterile peritoneal fluid, and good general condition; all the patients with signs of collapse died, as also all those with distended abdomen. The operation should be done with the least possible delay and the field of operation should be walled off from the rest of the peritoneal cavity. The peritoneum should not be rinsed except in the cases seen late; and the same rule applies to drainage. Simple suture of the ulcer seems to be preferable to excision or gastro-enterostomy.